



UNITED STATES MARINE CORPS

3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
P.O. BOX 452038
SAN DIEGO, CALIFORNIA 92145-2038

IN REPLY REFER TO:

5830

SJA

05 FEB 2014

THIRD ENDORSEMENT on b(3), b(6), b(7)(C) ltr 5800 S-3/b(3) of 20 Nov 13

From: Commanding General, Third Marine Aircraft Wing
To: Files

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

1. Having carefully reviewed the subject investigation, the findings of fact, opinions, and recommendations, as modified, are approved.

2. Per reference (a), the Office of the Staff Judge Advocate will retain a copy of this investigation for a period of two years.

b(3), b(6), b(7)(C)

b(3), S. W. BUSBY
b(6)

Copy to:
AC/S, ALD
DOSS
Code 15
b(3), MAG-16
b(3), VMM-163
b(3),



UNITED STATES MARINE CORPS

MARINE AIRCRAFT GROUP 16
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452026
SAN DIEGO CA 92145-2025

IN REPLY REFER TO:

5800

b(3)

DEC 14 2013

SECOND ENDORSEMENT on b(3), b(6), b(7) ltr 5800 b(3) of 21 Nov 13

From: b(3), b(6), b(7)(C) Marine Aircraft Group 16
To: Commanding General, 3d Marine Aircraft Wing

Subj: ENDORSEMENT OF THE COMMAND INVESTIGATION INTO THE FACTS
AND CIRCUMSTANCES SURROUNDING THE MARINE MEDIUM TILTROTOR
SQUADRON 163 CLASS A AVIATION MISHAP ON 26 AUGUST 2013

1. I have reviewed this investigation at length and concur with the findings of facts and opinions. The effects of sand and dust on the MV-22's engines has been identified as long term degradation over time, and is a matter of historical and operational record. To the extent records research allows and with consideration of common practices among experienced MV-22 aircrew, the rate of engine degradation that occurred in this event has not been seen or identified in the past. The distinguishing characteristic of this event is the extended amount of time the crew spent hovering in RVL conditions. It should be noted that this crew did not violate any regulations or procedures.

2. Therefore, I modify recommendation #2 with specific guidance as follows: All MAG-16 MV-22 crews will conduct RVL approaches in a deliberate manner as specified in NTTP 3-22.3-MV-22 published procedures; specifically, if crews are unable to maintain approach parameters, desire to change RVL procedures from manual to any form of automation assist, or fail to stabilize and land the aircraft once in a hover for more than 30 seconds, then a waveoff shall be executed.

3. This report and all supporting enclosures will be maintained by the Marine Aircraft Group 16 b(3), b(6), b(7)(C) at commercial b(3), b(6), b(7)(C)



UNITED STATES MARINE CORPS
MARINE MEDIUM TILTROTOR SQUADRON 163
MARINE AIRCRAFT GROUP 16
MCAS MIRAMAR
PO BOX 452117
SAN DIEGO, CA 92145-2117

IN REPLY REFER TO:

5800

b(

21 Nov 13

From: b(3), b(6), b(7)(C) Marine Medium Tiltrotor Squadron 163
To: Commanding General, 3rd Marine Aircraft Wing
Via: b(3), b(6), b(7)(C) Marine Aircraft Group 16

Subj: ENDORSEMENT OF THE COMMAND INVESTIGATION INTO THE FACTS AND
CIRCUMSTANCES SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON
163 (VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

1. The MV-22 provides capabilities that allow pilots to reduce drift in a complete brownout, enabling our crews to overcome the reduced visibility this aircraft generates in an unprepared LZ. Flight control systems and hover page symbology give us confidence to delay a waveoff while we attempt to stabilize in a manually controlled hover or wait for the aircraft to couple to a hover. However, it is now evident that this extended time in the dirt can lead to catastrophic events.

2. The significant difference between this mishap and the thousands of successfully flown RVLs the MV-22 community has executed in the past is the substantial amount of time spent in the brownout environment without a prolonged interval of flight in airplane mode through clear air. The excessive time spent in a brownout environment (at least 5 minutes and 50 seconds below 50 feet during the flight, and a continuous 2 minutes and 33 seconds during the last approach to LZ Blackrock) directly contributed to the resultant engine surge that caused the in-flight engine shutdown. Unfortunately, there is a lack of guidance in hover time limitations and engine vulnerabilities of the MV-22, items that should be addressed in a community wide directive such as the NATOPS. Due to the absence of requisite training and/or reference publications, the mishap aircrew lacked the necessary knowledge to anticipate and detect the rapid engine degradation experienced in the last minute of this flight.

3. I approve all findings of fact and concur with all opinions and recommendations of the report. I recommend expanding recommendation #2 to include the development of a NATOPS section that addresses engine performance and limitations during RVLs. Additionally, I recommend that, until a material solution is adopted to help preserve engine power and/or notify pilots of an unsafe degradation in engine performance, squadrons should adopt TTPs that limit prolonged exposure to RVL contaminants and require waveoffs when excessive time is spent in the dirt during a single RVL approach.

4. Safely landing in an RVL environment is part of the basic blocking and tackling of the MV-22 community. However, this skill is also

Subj: ENDORSEMENT OF THE COMMAND INVESTIGATION INTO THE FACTS AND
CIRCUMSTANCES SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON
163 (VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

where I see the highest level of risk. This squadron has had two mishaps in the last 7 months. Both were RVL related, and both were flown by very experienced and well trained aircraft commanders. The first was a Class C that involved an aircraft that landed on a tree during WTI; the second is the one that I am endorsing now. We cannot deny assault support to the Marines that depend on us because of our unwillingness to train to, and execute landings in brownout LZs. However, we must be good stewards of our resources and deliberately manage the training of this skill set. While we wait for the formal requirements process and funding to procure material solutions to help prevent this type of mishap, we must understand the challenges inherent in RVLs and continue to train to this capability, managing the risks with crew composition, LZ selection, and training frequency.

5. This report and all supporting enclosures will be maintained by the VMM-163 b(3). [REDACTED] c. The squadron point of contact is b(3), b(3), b(6), b(7)(C) [REDACTED] who can be reached at b(3), b(6), b(7)(C) [REDACTED] and b(3), [REDACTED].

b(3), b(6), b(7)(C)
[REDACTED]



UNITED STATES MARINE CORPS

MARINE MEDIUM TILTROTOR SQUADRON 163
MARINE AIRCRAFT GROUP 18
MCAS MIRAMAR
PO BOX 482117
SAN DIEGO, CA 92145-2117

IN REPLY REFER TO:

5800

S-3/b(3)

20 Nov 13

From: b(3), b(6), b(7)(C) [REDACTED] b(3), b(6), b(7)(C)/7532 USMC
To: b(3), b(6), b(7)(C) [REDACTED] Marine Medium Tiltrotor Squadron 163
Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013
Ref: (a) JAGINST 5800.7E
(b) OPNAV 3750.6R
(c) NATOPS Flight Manual Navy Model MV-22B/C Tiltrotor
(d) OPNAVINST 3710.7U
Encl: (1) Convening Order of 28 August 2013
(2) Extension Letter dated 25 September 2013
(3) Marine Medium Tiltrotor Squadron 163 Flight Schedule
dated 26 August 2013
(4) Consultation Report on Contributor Material dated
3 September 2013 (Medical Toxicological Report)
(5) Mishap Report dated 26 August 2013
(6) Power Point mishap photos taken on 28 August 2013
(7) Copy of VMM-163 Mishap Binder checklist Step 17
"Request Weather Conditions"
(8) Copy of Designation as a Naval Aviator letter dated
08 June 2007 from b(3), b(6), b(7)(C) [REDACTED] NATOPS
Qualification Jacket
(9) Copies of b(3), b(6), b(7)(C) [REDACTED] MSHARP Flight Summaries
(10) Copy of current NATOPS Evaluation (OPNAV 3710/7 Rev
4-90) dated 16 October 2012 from b(3), b(6), b(7)(C) [REDACTED]
NATOPS Qualification Jacket
(11) Copy of current NATOPS Instrument Rating (OPNAV
3710/2 Rev 1-74) dated 29 October 2012 from b(3),
b(3), b(6), b(7)(C) [REDACTED] NATOPS Qualification Jacket
(12) Copy of Current Clearance Notice (Aeromedical) from
b(3), b(6), b(7)(C) [REDACTED] NATOPS Qualification Jacket dated
11 June 2013
(13) Copy of Flight Personnel Designation Record (Section
IIA) from b(3), b(6), b(7)(C) [REDACTED] NATOPS Qualification
Jacket
(14) Copy of Mission Qualification Record (Section
IIB) from b(3), b(6), b(7)(C) [REDACTED] NATOPS Qualification
Jacket
(15) Copy of Mishap/Flight Violation Record (Section IVB)
From b(3), b(6), b(7)(C) [REDACTED] NATOPS Qualification Jacket

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

- (16) Copy of Designation as a Naval Aviator letter dated 28 September 2012 from b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (17) Copies of b(3), b(6), b(7)(C) MSHARP Flight Summaries
- (18) Copy of current NATOPS Evaluation (OPNAV 3710/7 Rev 4-90) dated 08 March 2013 from b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (19) Copy of current NATOPS Instrument Rating (OPNAV 3710/2 Rev 1-74) dated 15 February 2013 from b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (20) Copy of Current Clearance Notice (Aeromedical) from b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (21) Copy of Flight Personnel Designation Record (Section IIA) from b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (22) Copy of Mission Qualification Record (Section IIB) from b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (23) Copy of Mishap/Flight Violation Record (Section IVB) From b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (24) Copy of Acceptance of Designations letter for b(3), b(6), b(7)(C) dated 9 April 2012
- (25) Copies of b(3), b(6), b(7)(C) MSHARP Flight Summaries
- (26) Copy of current NATOPS Evaluation (OPNAV 3710/7 Rev 4-90) dated 09 July 2013 from b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (27) Copy of Current Clearance Notice (Aeromedical) from b(3), b(6), b(7)(C) NATOPS Qualification Jacket dated 11 December 2012
- (28) Copy of Flight Personnel Designation Record (Section IIA) from b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (29) Copy of Mission Qualification Record (Section IIB) from b(3), b(6), b(7)(C) NATOPS Qualification Jacket
- (30) Copy of Mishap/Flight Violation Record from b(3), b(6), b(7)(C) Aviators Flight Logbook
- (31) Copy of Acceptance of Designations letter for b(3), b(6), b(7)(C) dated 9 April 2012
- (32) Copies of b(3), b(6), b(7)(C) MSHARP Flight Summaries
- (33) Copy of current NATOPS Evaluation (OPNAV 3710/7 Rev 4-90) dated 20 August 2012 from b(3), b(6), b(7)(C) NATOPS Qualification Jacket

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE CLASS "A" MISHAP INVOLVING A MV-22B AT
CREECH AIR FORCE BASE, NEVADA ON 26 AUGUST 2013

- (34) Copy of Current Clearance Notice (Aeromedical) from
b(3), b(6), b(7)(C) NATOPS Qualification
Jacket dated 15 July 2013
- (35) Copy of Flight Personnel Designation Record (Section
IIA) from b(3), b(6), b(7)(C) NATOPS
Qualification Jacket
- (36) Copy of Mission Qualification Record (Section
IIB) from b(3), b(6), b(7)(C) NATOPS
Qualification Jacket with Low Light Level
Designation letter dated 11 April 2013
- (37) Copy of Mishap/Flight Violation Record (Section IIB)
From b(3), b(6), b(7)(C) Aviators Flight
Logbook
- (38) NALCOMIS OMA Automated Aircraft Discrepancy Book
screen copies from 26 August 2013
- (39) Open Aircraft Discrepancy Book (ADB) Work Orders
- (40) b(3), b(6), b(7)(C) s statement
- (41) b(3), b(6), b(7)(C) statement
- (42) b(3), b(6), b(7)(C) statement
- (43) b(3), b(6), b(7)(C) statement
- (44) Copy of Google Maps route from the Aliante Hotel to
Creech Air Force Base
- (45) Joint Mission Planning System (JMPS) screen shot
(satellite imagery) of Event 3142 route
- (46) Rolls-Royce slides provided 16 October 2013 for
Aircraft 168241 Surge and In-Flight Shut-Down Event
(August 2013)
- (47) Draft Visualization, MV-22 BUNO 168241 created by
b(3), b(3), NAVAIR Assistant during September 2013
- (48) Structural Evaluation of 2013 MV-22B Mishap Impact
Damage by b(3), b(6), b(7)(C), AIR 4.3.3.3 Rotary Wing
Loads and Dynamics Technical Specialist
- (49) Air Traffic Control recordings from 26 August 2013
- (50) Investigating Officer's summary of interview with
b(3), b(6), b(7)(C) on 14 November 2013.
- (51) Standard Form 600 (EF), Chronological Record of
Medical Care for b(3), b(6), b(7)(C) dated
26 August 2013
- (52) Standard Form 600 (EF), Chronological Record of
Medical Care for b(3), b(6), b(7)(C)
dated 26 August 2013
- (53) Standard Form 600 (EF), Chronological Record of
Medical Care for b(3), b(6), b(7)(C) b(3), b(6)
dated 26 August 2013
- (54) Standard Form 600 (EF), Chronological Record of
Medical Care for b(3), b(6), b(7)(C) dated
26 August 2013

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

(55) b(3), b(6), [REDACTED], PEO(A), PMA-275, email dated
20 November 2013

(56) b(3), b(6), [REDACTED] b(3), b(6), b(7)(C) [REDACTED] b,
VMM-163 email dated 20 November 2013

PRELIMINARY STATEMENT

1. Pursuant to enclosures (1) and (2), I conducted a command investigation into the circumstances surrounding the MV-22B class "A" mishap that occurred on 26 August 2013.

2. This incident was simultaneously investigated by an Aviation Mishap Board (AMB) led by b(3), b(6), b(7)(C) [REDACTED], Marine Aircraft Group 16, 3D MAW, IMEF, MCAS Miramar. Every effort was made to ensure the "privileged" information obtained by the AMB was maintained properly and that the Command Investigation was conducted parallel to, and separate from, the AMB's investigation.

3. All documentary evidence included herein is either an original, copy, or photo of the original documents. The AMB possesses and maintains the majority of the original documentary evidence as well as the pertinent physical evidence. b(3), [REDACTED] b(3), [REDACTED] is the primary point of contact for the AMB.

4. All times in this report are based on the 24 hour clock, and on Pacific Standard Time (PST).

5. Limited testimonial evidence describing the morning routines of the aircrew on the day of the incident is provided in some aircrews statements. Further details on mishap aircrew actions prior to the mishap are not relevant based upon the determination of cause for the mishap.

6. All reasonably available evidence was collected and each directive of the Convening Authority has been met. During the course of this investigation I consulted with b(3), b(6), b(7)(C) [REDACTED] b(3), b(6), [REDACTED], b(3), b(6), b(7)(C) [REDACTED], b(3), b(6), b(7)(C) [REDACTED], b(3), b(6), b(7)(C) [REDACTED], b(3), b(6), b(7)(C) [REDACTED], b(3), [REDACTED] b(3), b(6), b(7)(C) [REDACTED], for 3D Marine Aircraft Wing.

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE CLASS "A" MISHAP INVOLVING A MV-22B AT
CREECH AIR FORCE BASE, NEVADA ON 26 AUGUST 2013

FINDINGS OF FACT

AIRCRAFT, PERSONNEL, LANDING ZONE AND WEATHER INVOLVED

7. A Marine MV-22B aircraft, Bureau Number (BuNo) 168241, side number 11, assigned to Marine Medium Tiltrotor Squadron 163, was involved in an aviation mishap at Creech Air Force Base, Nevada. [Encl (3), (5)]

8. The mishap aircraft was scheduled to conduct an area familiarization (Area FAM) and section confined area landings (SEC CALS). [Encl (3)]

9. The approving authority for the flight was b(3), b(6), b(7) b(3), b(6), b(7)(C) [REDACTED], VMM-163 b(3), b(6), b(7)(C) [REDACTED]. [Encl (3)]

10. The mishap aircraft was scheduled to utilize confined area landing zones within Creech Air Force Base Tower's airspace. [Encl (3)]

11. The mishap aircraft was flown by two pilots. The Tiltrotor Aircraft Commander (TAC) was b(3), b(6), b(7)(C) [REDACTED] xxx xx b(3), [REDACTED] USMC. The Co-pilot (T2P) was b(3), b(6), b(7)(C) [REDACTED] b(3), b(6), [REDACTED] xxx xx b(3), [REDACTED] USMC. [Encl (3)]

12. The mishap aircraft was crewed by two enlisted Crew Chiefs (CC), b(3), b(6), b(7)(C) [REDACTED] b(3), b(6), b(7)(C) [REDACTED] USMC, and b(3), [REDACTED] e b(3), b(6), b(7)(C) [REDACTED] USMC. [Encl (3)]

13. None of the aircrew on the mishap aircraft sustained injuries beyond minor bruises, scrapes and bloody noses as a result of the mishap. [Encl (40-43), (50), (51)]

14. None of the aircrew on the mishap aircraft tested positive for any toxicological or alcoholic substances. [Encl (4)]

15. The mishap occurred at approximately 1540L (2240Z) on 26 August 2013. [Encl (5)]

16. The weather at 1530L was:
a. Temperature/Dew Point - 25C/14C
b. Wind direction and velocity - 110/14kts
c. Ceilings - Scattered at 15,000 feet and 19,000 feet
d. Visibility - 7 statute miles
e. Scattered thunderstorms
[Encl (5), (7)]

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

17. The mishap occurred at Landing Zone (LZ) Peanut located approximately 1 mile northeast of Creech Air Force Base airfield. [Encl (5), (6), (49)]

18. Landing Zones Blackrock and Peanut are relatively flat and open consisting of fine dirt and sandy (desert like) soil with scattered low scrub brush and some micro-terrain. [Encl (6), (45), (48)]

PILOTS' AVIATION BACKGROUND, DESIGNATIONS AND QUALIFICATIONS

19. [b(3), b(6), b(7)(C)] was designated a naval aviator on 08 June 2007, and had logged 1358.6 hours of total pilot time and 788.2 hours in the MV-22 prior to 26 August 2013. [Encl (8), (9)]

20. [b(3), b(6), b(7)(C)] had logged 32.6 flight hours in the last 30 days, 70 flight hours in the last 60 days, 102.7 flight hours in the last 90 days, and [b(3), b(6), b(7)(C)] last flight in the aircraft prior to the mishap was 22 August 2013. [Encl (9)]

21. [b(3), b(6), b(7)(C)] had flown 288.5 flight hours since the start of the 2013 fiscal year. He had met annual flight hours per reference (d). [Encl (9)]

22. [b(3), b(6), b(7)(C)] held a current NATOPS and instrument rating, and was current in Crew Resource Management and Emergency Egress training in the MV-22. [Encl (10), (11)]

23. [b(3), b(6), b(7)(C)] completed an annual flight physical on 11 June 2013, and was found physically qualified for flight operations with no waivers. [Encl (12)]

24. [b(3), b(6), b(7)(C)] held the following designations as an MV-22 pilot:

- a. Tiltrotor Aircraft Commander (TAC)
- b. Basic Instructor Pilot
- c. Functional Check Pilot
- d. Section Leader
- e. Division Leader
- f. Low Altitude Terrain Instructor
- g. Air to Air Refuel Instructor
- h. Night Systems Instructor

[Encl (13), (14)]

25. [b(3), b(6), b(7)(C)] had no previous flight violations. [Encl (15)]

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE CLASS "A" MISHAP INVOLVING A MV-22B AT
CREECH AIR FORCE BASE, NEVADA ON 26 AUGUST 2013

26. [b(3), b(6), b(7)(C)] was designated a naval aviator on 28 September 2012, and had logged 279.6 hours of total pilot time and 67.8 hours in the MV-22 prior to 26 August 2013. [Encl (16), (17)]

27. [b(3), b(6), b(7)(C)] had logged 6.4 flight hours in the last 30 days, 12.5 flight hours in the last 60 days, 26.2 flight hours in the last 90 days, and [b(3), b(6), b(7)(C)] last flight in the aircraft prior to the mishap was 21 August 2013. [Encl (17)]

28. [b(3), b(6), b(7)(C)] had flown 63.6 flight hours since the start of the 2013 fiscal year. He had met annual flight hours per reference (d). [Encl (17)]

29. [b(3), b(6), b(7)(C)] held a current NATOPS and instrument rating, and was current in Crew Resource Management and Emergency Egress training in the MV-22. [Encl (18), (19)]

30. [b(3), b(6), b(7)(C)] completed an annual flight physical on 15 May 2013, and was found physically qualified for flight operations with no waivers. [Encl (20)]

31. [b(3), b(6), b(7)(C)] held the designation of MV-22 Tiltrotor Second Pilot (T2P). [Encl (21), (22)]

32. [b(3), b(6), b(7)(C)] had no previous flight violations. [Encl (23)]

ENLISTED AIRCREW'S AVIATION BACKGROUND AND QUALIFICATIONS

33. [b(3), b(6), b(7)(C)] was assigned as an MV-22 crewmember with Marine Medium Tiltrotor Squadron 163 on 01 August 2012. [Encl (24)]

34. [b(3), b(6), b(7)(C)] had logged 36.4 flight hours in the last 30 days, 51.6 flight hours in the last 60 days, 63.3 flight hours in the last 90 days, and Lance Corporal Arias' last flight in the aircraft prior to the mishap was 22 August 2013. [Encl (25)]

35. [b(3), b(6), b(7)(C)] had flown 216.4 flight hours since the start of the 2013 fiscal year and had logged 274.3 hours of special crew time. He had met annual flight hours per reference (d). [Encl (25)]

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

36. b(3), b(6), b(7)(C) held a current NATOPS rating, and was current in Crew Resource Management and Emergency Egress training in the MV-22. [Encl (26)]

37. b(3), b(6), b(7)(C) completed an annual flight physical on 11 December 2012, and was found physically qualified for flight operations with no waivers. [Encl (27)]

38. b(3), b(6), b(7)(C) held the following qualifications and designations as an MV-22 crew chief:

- a. Low Altitude Terrain
- b. High Light Level
- c. Low Light Level
- d. Crew Chief (CC)

[Encl (28), (29)]

39. b(3), b(6), b(7)(C) had no previous flight violations. [Encl (30)]

40. b(3), b(6), b(7)(C) was assigned as an MV-22 crewmember with Marine Medium Tiltrotor Squadron 163 on 09 April 2012. [Encl (31)]

41. b(3), b(6), b(7)(C) had logged 36.4 flight hours in the last 30 days, 57 flight hours in the last 60 days, 82.4 flight hours in the last 90 days, and Lance Corporal Charouhas' last flight in the aircraft prior to the mishap was 21 August 2013. [Encl (32)]

42. b(3), b(6), b(7)(C) had flown 192.5 flight hours since the start of the 2013 fiscal year and had logged 303.8 hours of special crew time. He had met annual flight hours per reference (d). [Encl (32)]

43. b(3), b(6), b(7)(C) held a current NATOPS rating, and was current in Crew Resource Management and Emergency Egress training in the MV-22. [Encl (33)]

44. b(3), b(6), b(7)(C) completed an annual flight physical on 15 July 2013, and was found physically qualified for flight operations with no waivers. [Encl (34)]

45. b(3), b(6), b(7)(C) held the following qualifications and designations as an MV-22 crew chief:

- a. Low Altitude Terrain
- b. High Light Level
- c. Low Light Level
- d. Tail Gunner Qualified

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE CLASS "A" MISHAP INVOLVING A MV-22B AT
CREECH AIR FORCE BASE, NEVADA ON 26 AUGUST 2013

e. Crew Chief (CC)
[Encl (35), (36)]

46. [b(3), b(6), b(7)(C)] had no previous flight violations.
[Encl (37)]

BACKGROUND OF MISHAP AIRCRAFT

47. At the time of the mishap, MV-22B BuNo 168241, side number 11, had 274.4 aircraft hours and had last flown on 22 August 2013. [Encl (38)]

48. At the time of the mishap, MV-22B BuNo 168241 had 145.6 hours remaining until the next Phase Inspection (Phase "B").
[Encl (38)]

49. MV-22B BuNo 168241 had engine serial numbers CAE130542 (left engine that experienced the power-loss) and CAE130544 (right engine). [Encl (38)]

50. MV-22B BuNo 168241 engine serial number CAE130542 had 274.4 total hours and had 31.2 hours remaining until its next phase engine inspection. [Encl (38)]

51. MV-22B BuNo 168241 engine serial number CAE130544 had 274.4 total hours and had 31.2 hours remaining until its next phase engine inspection. [Encl (38)]

52. MV-22B BuNo 168241 engine serial number CAE130542 last Engine Power Performance (EPP) check indicated 108.66 percent of engine torque (Qe) available. [Encl (38)]

53. MV-22B BuNo 168241 engine serial number CAE130544 last Engine Power Performance (EPP) check indicated 106.34 percent of engine torque (Qe) available. [Encl (38)]

54. MV-22B BuNo 168241 was Partially Mission Capable (PMC) with a "Generator #3 Failure" open Maintenance Action Form (MAF).
[Encl (39)]

55. MV-22B BuNo 168241 had 14 open MAFs and no downing discrepancies prior to the mishap flight. [Encl (39)]

56. MV-22B BuNo 168241 was due for a 35 hour Hover Power Assurance Check (HPAC) on both engines in order to determine EPP available. [Encl (39)]

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

57. All required maintenance action was complete on the mishap aircraft and the mishap aircraft was considered safe for flight. [Encl (38), (39)]

MISHAP AIRCREW'S IMMEDIATE HISTORY

58. On 26 August 2013 b(3), b(6), b(7)(C) (TAC), b(3), b(3), b(6), b(7)(C) (T2P), b(3), b(6), b(7)(C) (CC) and b(3), b(3), b(6), b(7)(C) (CC) were scheduled to conduct an area familiarization flight (Area FAM) and section confined area landings (Sec CALS) at Creech Air Force Base, Nevada. [Encl (3)]

59. b(3), b(6), b(7)(C), b(3), b(6), b(7)(C) and b(3), b(3), b(6), b(7)(C) arrived in the greater Las Vegas area on 25 August 2013, and spent the night at the Aliante Hotel in North Las Vegas. b(3), b(6), b(7)(C) traveled from MCAS Miramar aboard an MV-22 ferry-flight to Creech AFB the morning of 26 August 2013. [Encl (40), (41), (42), (43), (44)]

60. There were no personal contributing factors to the mishap in the 24 hours prior to the mishap event. [Encl (40), (41), (42), (43)]

61. The aircrew assigned to fly the mishap aircraft were qualified and met all required orders and directives the day of the flight in order to perform the mission. [Encl (3), (4), (8-37)]

MISHAP EVENT

62. The aircrew arrived at Creech Air Force Base temporary squadron spaces. b(3), b(6), b(7)(C), b(3), b(6), b(7)(C), and b(3), b(6), b(7)(C) arrived in the late morning after traveling from the Aliante Hotel, and b(3), b(6), b(7)(C) arrived in the late morning on a MV-22 ferry flight from MCAS Miramar. The aircrew conducted flight preparation and planning in accordance with all orders and squadron standard operating procedures (SOPs). [Encl (3), (40), (41), (42), (43), (44)]

63. The mission brief for the flight occurred at 1230L in the temporary squadron spaces located next to the aircraft parking ramp. The Operations Duty Officer (ODO) brief, given by b(3), b(6), b(3), b(6), b(7)(C) (VMM-163) included the local weather, aircraft line-up, airspace and applicable frequencies. Following the ODO, b(3), b(6), b(7)(C) (the Section Leader), briefed the conduct of the flight. [Encl (3), (40), (41), (42), (43), (44), (45)]

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE CLASS "A" MISHAP INVOLVING A MV-22B AT
CREECH AIR FORCE BASE, NEVADA ON 26 AUGUST 2013

64. The flight of two aircraft was briefed by the Section Leader to depart as a section, then separate and conduct single ship landings to landing zones Blackrock and Peanut. It was

also briefed to overfly a site where external operations were to be conducted in the future for familiarization. All other items covered in the section brief were in accordance with reference (b), (c), and (d). [Encl (3), (40), (41), (42), (43), (44), (45)]

65. The flight was briefed in accordance with references (b), (c), and (d). [Encl (40), (41), (42), (43), (44)]

66. b(3), b(6), b(7)(C) conducted a NATOPS aircrew brief in accordance with references (c). [Encl (40), (41), (42), (43), (44)]

67. The mishap aircraft landed at Creech Air Force Base at approximately 1400L after being ferried from MCAS Miramar by Event 3121. [Encl (3), (40), (41), (42), (43), (44)]

68. The Engine Run Time (ERT) during the first flight by Event 3121 (the first engine cycle) was approximately 5.4 hours. [Encl 46]

69. During the first engine cycle, neither engine reached engine torque (Qe), measured gas temperature (MGT), nor gas/power turbine speed (Ng) steady-state limits. [Encl 46]

70. b(3), b(6), b(7)(C) conducted a hotseat (accepting the aircraft from the previous aircraft commander) and shutdown the aircraft. The Event 3121 and mishap aircrew fueled the mishap aircraft to 10,500 pounds of JP-5 fuel. [Encl (40), (41), (42), (43), (44)]

71. The mishap aircrew manned the mishap aircraft, started, taxied and departed as a section in the dash-two position. Shortly after departure the Section Leader dissolved the section. The mishap aircrew flew to LZ Blackrock, while the lead aircraft flew to LZ Peanut. [Encl (40), (41), (42), (43), (44), (45)]

72. From the time the mishap aircraft departed the airfield until the first "approach to a hover" was conducted, it was determined that the health of the engines were rated at 108 percent (left engine) and 103 percent (right engine) Engine

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

Power Performance (EPP). This indicates the amount of Qe available to each engine expressed as a percentage. [Encl (46)]

73. From the time the mishap aircraft departed the airfield until the mishap event, the nacelle angle was ≥ 60 nacelle. [Encl (46)]

74. The engine run time (ERT) from the time the mishap aircraft departed the airfield until the mishap event was approximately 0.9 hours (the second engine cycle). [Encl (46)]

75. During the second engine cycle the MGT on both engines repeatedly reached MGT limits during the last 60 seconds of flight. Qe, and Ng limits were not reached. [Encl (46)]

76. During the first and second engine cycle the MGT on the left engine averaged lower than the right. Near the end of the second engine cycle, MGT on the left engine began to average higher than the right engine. [Encl (46)]

77. The mishap aircrew conducted multiple approaches to a hover at LZ Blackrock that included multiple unplanned wave-offs. The last approach at LZ Blackrock was to a landing. [Encl (40), (41), (42), (43), (44), (45), (46)]

78. Following the last approach to a landing at LZ Blackrock by the mishap aircraft, the Section Leader called the mishap aircrew to inform them they were complete at LZ Peanut, and then initiated the landing zone swap. The mishap aircrew flew direct to LZ Peanut and conducted multiple approaches to a hover. [Encl (40), (41), (42), (43), (44)]

79. Flight Incident Recorder (FIR) data shows that from the time the first approach was commenced at LZ Blackrock until the mishap event, the combination of high power settings (> 60 percent Qe) and particulate ingestion at low hover altitudes and airspeeds (< 100 feet and 50 KCAS) resulted in deterioration of EPP. [Encl (46)]

80. The mishap aircrew conducted the last approach to LZ Peanut with First Lieutenant Healy at the flight controls, and Captain Sokolowski acting as the non-flying pilot (PNF). [Encl (40), (41), (42), (43), (44)]

81. The last approach was conducted from west to east with a right quartering headwind (gusting to approximately 20 knots) and to a hover altitude less than 40 feet above ground level (AGL). Approximately 25 seconds was spent below 40 feet AGL as

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE CLASS "A" MISHAP INVOLVING A MV-22B AT
CREECH AIR FORCE BASE, NEVADA ON 26 AUGUST 2013

the aircrew attempted to stabilize the aircraft enough to conduct a landing. [Encl (40), (41), (42), (43), (44), (46), (47)]

82. The left hand engine lost approximately 20 percent EPP during 25 seconds while hovering below 40 feet AGL. [Encl (46)]

83. The "L POWER LIMITING" advisory posted several times in the cockpit display during the last 60 seconds of the flight indicating the left engine was reaching its MGT limit. [Encl (46), (47)]

84. Following the initial attempts to stabilize the aircraft the mishap pilots increased altitude with the intention of "hover-coupling" (aircraft automatically holds altitude in a hover over a spot) at 50 feet, and then conducting a "Hover Out of Ground Effect (HOGE) Hover-Coupled Approach." [Encl (40), (41), (42), (43), (44), (46), (47)]

85. After initiating the increase in altitude to 50 feet, the mishap aircraft spent 45 seconds above 40 feet AGL until the In-Flight Shut-Down (IFSD)/power-loss initiated. [Encl (46), (47)]

86. The aircrew initiated HOGE Hover-Coupled procedures in accordance with NATOPS and was waiting for the aircraft to "capture" (aircraft stabilizes in a hover with the aircraft holding altitude, heading and position without pilot input) when the left hand engine experienced an IFSD/power-loss. [Encl (40), (41), (42), (43), (44), (46), (47)]

87. Just prior to the IFSD/power-loss and hard landing, both EPPs rapidly deteriorated to approximately 78 percent (left engine) and 95 percent (right engine). [Encl (46)]

88. The aircrew reported a falling sensation and a decrease in aircraft noise. An "L ENG CMPR STALL" (left engine compressor stall) caution posted and the aircraft descended from approximately 50 feet to contact with the ground in approximately 4 seconds. During the rapid descent the TAC applied full power via the Thrust Control Lever (TCL). [Encl (40), (41), (42), (43), (44), (46), (47)]

89. Upon contacting the ground at a near level attitude, the aircraft's right wing fractured at a point near the main cabin. The aircraft rolled right and the right nacelle blades cut through the left wing, with the right nacelle and wing coming to

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

rest upside-down and left of the main cabin, pointing away from the main cabin's position. [Encl (6), (48)]

90. The left nacelle and outer 2/3 of the wing were cut from the main cabin area and came to rest upside-down and forward of the nose of the aircraft pointing away from the main cabin's position. [Encl (6), (48)]

91. All proprotor blades fractured or shattered after impacting the ground or airframe. The tail section broke from the main cabin near the ramp area and came to rest upside-down, aft and right of the main cabin area.

92. The right-main landing gear fractured from the aircraft, with the left-main landing gear and nose-wheel landing gear remaining attached to the airframe. [Encl (6), (48)]

93. Post-impact fires began in the aft tail section and nacelles. The aircrew reported seeing fuel streaming over the left, main cabin windows. [Encl (6), (48)]

94. As the aircraft descended, (b) (6), (b) (7)(C), (b) (3) (A) pushed himself back from the right side main cabin crew door just prior to impact. Upon impact he fell to the cabin floor, felt the aircraft roll to the right, pushed himself up and observed fire and smoke in the aft cabin with fuel streaming out near the ramp, as well as on the left side cabin window. He saw a space through the right main cabin door between the ground and the aircraft, and egressed through it. [Encl (40), (41), (42), (43)]

95. (b) (3), (b) (6), (b) (7)(C) was the first aircrewman out. After crawling from the aircraft, he hurried away and upwind from the aircraft and turned to see (b) (3), (b) (6), (b) (7)(C) following him. [Encl (40), (41), (42), (43)]

96. As the aircraft descended, (b) (3), (b) (6), (b) (7)(C) was on the ramp and threw himself back towards the inside of the cabin and was lying flat upon impact. Following the aircraft rolling to the right, he observed smoke and fire in the aft portion of the cabin and followed (b) (3), (b) (6), (b) (7)(C) out the main cabin, right side door. [Encl (40), (41), (42), (43)]

97. (b) (3), (b) (6), (b) (7)(C) was the second aircrewman out and egressed upwind of the aircraft with (b) (3), (b) (6), (b) (7)(C). [Encl (40), (41), (42), (43)]

98. Following the aircraft's rolling motion stopping, (b) (3), (b) (6), (b) (7)(C) saw that (b) (3), (b) (6), (b) (7)(C) was unstrapping to egress the aircraft. He unstrapped and egressed through the

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE CLASS "A" MISHAP INVOLVING A MV-22B AT
CREECH AIR FORCE BASE, NEVADA ON 26 AUGUST 2013

tunnel to the main cabin where he observed dark smoke in the aft portion of the cabin. He called for b(3), b(6), b(7)(C) and b(3), receiving no response. He egressed through the main cabin, right side door through an opening between the ground and the aircraft frame. [Encl (40), (41), (42), (43)]

99. b(3), b(6), b(7)(C) was the third aircrewman out. After exiting, he observed b(3), b(6), b(7)(C) and b(3), hurrying away and upwind from the crash site and followed them. [Encl (40), (41), (42), (43)]

100. Following the aircraft's rolling motion stopping, b(3), b(6), attempted to actuate the aircraft's emergency egress handle (yellow emergency T-handle) on the left side window to actuate the explosive charge. The hatch created by the charge would have allowed b(3), b(6), b(7)(C) to egress out the left pilot side. The charge failed to actuate and b(3), b(6), b(7)(C) unstrapped and egressed through the tunnel leading to the main cabin, right side door. b(3), b(6), b(7)(C) was able to crawl out an opening between the ground and the aircraft frame. [Encl (40), (41), (42), (43)]

101. b(3), b(6), b(7)(C), the last aircrewman out, hurried to meet the rest of the aircrew upwind of the crash site. [Encl (40), (41), (42), (43)]

102. All four of the aircrew rallied upwind of the mishap aircraft (in an area forward of the nose and away from any smoke).

103. b(3), b(6), b(7)(C) dialed 911 (reaching Clark County Dispatchers) and informed the operator of the mishap who then contacted Creech Dispatch (located at Nellis Air Force Base). b(3), b(6), b(7)(C) called the squadron duty officer and informed the VMM-163 duty of the mishap. [Encl (40), (41), (42), (43), (49), (50)]

104. The Creech Air Force Base control tower observed the smoke from the mishap site, and also contacted Creech Dispatch. [Encl (40), (41), (42), (43), (49), (50)]

105. Creech Airfield Fire Department responded with two "Crash Trucks" (Crash 8 and Crash 10), one "Command Vehicle" (DC 4), one Fire Engine (Engine 22), one "Medical Unit Truck" (Rescue 30), and one "Tanker Truck" (Tanker 26). An ambulance attached to the Creech Air Force Base Medical Unit also responded (Med 1). [Encl (49), (50)]

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

106. At approximately 1535L Crash 8, Crash 10, Engine 22, and DC 4 were dispatched by Creech Dispatch to respond to the mishap site. Crash 8 arrived first, at approximately 1540L, followed shortly by the other vehicles. [Encl (49), (50)]

107. Initially it was unknown whether or not any aircrew were in the mishap aircraft and DC 4 directed Crash 8 to "cut a path" to the aircraft to attempt a rescue. The aircrew initially had not made contact with the rescue crews. [Encl (49), (50)]

108. While Crash 8, 10 and Engine 22 fought the fire, the aircrew made their way to the Engine 22 crew and made contact, which was then reported over the radio. Small explosions occurred and DC 4 commanded all the vehicles to cease fighting the fire and return to a staging area (on the nearby road) until a safety representative could confirm what ordnance or explosives were on the aircraft. [Encl (49), (50)]

109. At approximately 1552L the vehicles pulled back to the staging area, and Crash 8, Crash 10, and Engine 22 returned to the air base to refill their water tanks (an approximately 5 minute drive). [Encl (49), (50)]

110. The medical unit ambulance (Med 1), which also arrived shortly after the first Crash 8 vehicle, made an on scene medical assessment of the pilots and aircrewman, determining that no further medical attention was needed. The pilots and aircrew remained in the area throughout the firefighting efforts. [Encl (49), (50), (51)]

111. At approximately 1610L Crash 10 returned and was ordered by DC 4 to begin fighting the fire again. Crash 8 and Engine 22 followed shortly thereafter. Rescue 30 was ordered by DC 4 to return to the air base to bring Tanker 26 out to the site to have a ready supply of additional water. [Encl (49), (50)]

112. At approximately 1627L the fire was officially out. "Overhaul Operations" (putting out small flare-up fires) occurred until 1734L. [Encl (49), (50)]

113. The final disposition of the aircraft consisted of approximately 2/3 of the entire airframe destroyed by fire. The left nacelle and outer 2/3 of the wing were damaged by fire, but remained relatively intact. The right nacelle and outer wing were more severely damaged by fire, but still retained their relative structural shape. The main cabin was mostly destroyed by the post-mishap fire. The mid-wing gearbox area was heavily damaged by fire, but remained somewhat intact. The pilot

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE CLASS "A" MISHAP INVOLVING A MV-22B AT
CREECH AIR FORCE BASE, NEVADA ON 26 AUGUST 2013

compartment was heavily damaged by fire, but retained its structural shape. The pilot's crash attenuating seats were fully stroked (indicating they reduced the forces of impact on the pilots) and the aircrafts flight controls remained intact. [Encl (6), (48)]

POST-MISHAP ANALYSIS

114. All mishap aircrew underwent medical evaluations and lab tests in accordance with all orders and directives. [Encl (4), (5-54)]

115. The on-site medical team (Med 1) evaluated the aircrew and determined they had no medical issues resulting from the mishap which required them to be transported to a medical facility. [Encl (49), (50-54)]

116. [b(3), b(6), b(7)(C)] experienced mild soreness and an abrasion in the left hip area a result of the mishap, and therefore a Line of Duty/Misconduct determination is not required in accordance with reference (a). [Encl (51)]

117. [b(3), b(6), b(7)(C)] had no injuries as a result of the mishap. A Line of Duty/Misconduct determination is not required in accordance with reference (a). [Encl (52)]

118. [b(3), b(6), b(7)(C)] had mild left knee pain as a result of the mishap. A Line of Duty/Misconduct determination is not required in accordance with reference (a). [Encl (53)]

119. [b(3), b(6), b(7)(C)] had blunt trauma to the face, left hand, and right knee with no fractures or lacerations as a result of the mishap. A Line of Duty/Misconduct determination is not required in accordance with reference (a). [Encl (54)]

120. Rolls-Royce conducted a post-mishap engine analysis on engine serial numbers CAE130542 (left engine) and CAE130544 (right engine). [Encl (46)]

121. Rolls-Royce analysis of the left engine's (CAE130542) compressor condition appeared consistent with other engines from operations in similar austere locations. [Encl (46)]

122. Rolls-Royce analysis of the left engine's (CAE130542) turbine condition revealed that build-up on the 1st stage blade track was unusual in terms of quantity and layering of material.

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE MARINE MEDIUM TILTROTOR SQUADRON 163
(VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

The analysis of the right engine (CAE130544) indicated similar debris build-up in the turbine area. [Encl (46)]

123. Based on borescope pictures Rolls Royce analysis determined the mishap event was not due to a hardware failure. [Encl (46)]

124. Based on the flight data, Rolls-Royce analysis determined sensor errors or external bleed leakages are not likely the root cause of the mishap. [Encl (46)]

125. Left and right Engine Air Particle Separators (EAPS) were functioning normally in AUTO mode with no faults posted. [Encl (46)]

126. Rolls-Royce analysis of both engines on the mishap aircraft leads the Rolls Royce investigation team to the conclusion that the mishap event was a result of extensive sand/dust ingestion. [Encl (46)]

127. NAVAIRSYSCOM conducted a post-mishap structural evaluation of MV-22B BuNo 168241. The conclusion was that the right wing failure and right main landing gear failure that resulted from the hard landing was a reasonable structural response. [Encl (48)]

128. Mishap aircraft BuNo 168241 had an estimated total cost at delivery of \$63,922,714.00. The Defensive Weapon System (DWS), installed on the aircraft, had a total cost of \$1,036,565.08. [Encl (55), (56)]

OPINIONS

1. Weather was not a significant factor in the mishap. [FF 16, 81-86]

2. The aircrew did not exceed any limits of the aircraft, fail to follow any orders, directives or SOPs, or fly the mishap aircraft in a manner determined to be unsafe by current guidance provided by orders, directives, SOPs or publications relating to safe operations of the MV-22. [FF 58-88; (Ref (b), (c), (d))]

3. EPP decreased on both engines each time the aircraft entered a low altitude hover (50 feet and below) over LZ Blackrock and Peanut as dust and sand particles increased in the air due to rotor-wash. [FF 79, 87]

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE CLASS "A" MISHAP INVOLVING A MV-22B AT
CREECH AIR FORCE BASE, NEVADA ON 26 AUGUST 2013

4. Engine power limiting indications through the "L POWER LIMITING" advisory was an indication of decreasing engine performance during the second engine cycle. [FF 69, 72, 74-76, 79, 81-83]

5. The mishap aircraft's left engine experienced a compressor stall due to sand and dust ingestion that caused buildup and layering of material on the 1st stage turbine blades and vanes over the second engine cycle period of 0.9 hours. [FF 68-88, 120-126]

6. The aircrew performed all emergency procedures in accordance with NATOPS and training when responding to the engine failure in a significantly compressed period of time. [FF 88]

7. The airframe of the mishap aircraft failed in a manner consistent with its design. [FF 89-92, 127]

RECOMMENDATIONS

1. That no administrative or disciplinary action be taken against the TAC, b(3), b(6), b(7)(C), the T2P, b(3), b(6), b(7)(C), b(3), or the CCs, b(3), b(6), b(7)(C) and b(3), b(6), b(7)(C) b(3).

2. EPP has a potential to decline to an unsafe level with repeated reduced visibility landings (RVLs). While, there are too many factors involved to provide specific guidance on how to limit operations in these conditions, emphasis should be placed through training, SOPs and leadership on the potential hazards.

3. The "power limiting" alert advisory (AADV) that posted in the last 60 seconds of flight was an indication that EPP was deteriorating. Because other environmental and aircraft factors can cause the AADV, there would be no expectation for any crew to "immediately" recognize this as an impending compressor stall or loss of engine power. Adding a software change to alert the aircrew through a Warning, Caution, Alert Advisory or Advisory (WCAs) that engine EPP has deteriorated below 95 percent is recommended.

b(3), b(6), b(7)(C)



UNITED STATES MARINE CORPS
MARINE MEDIUM TILTROTOR SQUADRON 163
MARINE AIRCRAFT GROUP 16
MCAS MIRAMAR
PO BOX 452117
SAN DIEGO, CA 92145-2117

IN REPLY REFER TO:

5800

b(

28 Aug 13

From: b(3), b(6), b(7)(C) [REDACTED], Marine Medium Tiltrotor Squadron 163
To: b(3), b(6), b(7)(C) [REDACTED] /7532 USMC

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES SURROUNDING THE
MARINE MEDIUM TILTROTOR SQUADRON 163 (VMM-163) CLASS A AVIATION MISHAP
ON 26 AUGUST 2013

Ref: (a) JAGMAN

1. This Command Investigation is convened to investigate the circumstances surrounding the Class A aviation mishap in compliance with 10 U.S.C. § 2255.
2. This letter appoints you, per chapter II of reference (a), to inquire into the facts and circumstances surrounding the VMM-163 aviation incident on or about 26 August 2013.
3. Investigate the facts of the incident, resulting injuries and damages, and any fault, neglect, or responsibility thereof, and recommend appropriate administrative or disciplinary action. Report your findings of fact, opinions, and recommendations in letter-form NLT 27 September 13, unless an extension of time is granted. If you have not previously done so, read chapter II of reference (a) in its entirety before beginning your investigation.
4. b(5) [REDACTED]
5. The VMM-163 Administrative Section is directed to furnish necessary clerical assistance as required.

b(3), b(6), b(7)(C) [REDACTED]

Copy to:

b(3), [REDACTED]

File



UNITED STATES MARINE CORPS
MARINE MEDIUM TILTROTOR SQUADRON 163
MARINE AIRCRAFT GROUP 16
MCAS MIRAMAR
PO BOX 452117
SAN DIEGO, CA 92145-2117

IN SUPPLY REFER TO:

5800

b(

25 Sep 13

From: b(3), b(6), b(7)(C) [REDACTED], Marine Medium Tiltrotor Squadron 163
To: b(3), b(6), b(7)(C) [REDACTED] /7532 USMC

Subj: EXTENSION TO COMPLETION TIMELINE ICO COMMAND INVESTIGATION INTO THE
FACTS AND CIRCUMSTANCES SURROUNDING THE MARINE MEDIUM TILTROTOR
SQUADRON 163 (VMM-163) CLASS A AVIATION MISHAP ON 26 AUGUST 2013

Ref: (a) JAGMAN

1. This letter grants you a timeline extension to 27 October 2013, per chapter II of reference (a), to inquire into the facts and circumstances surrounding the VMM-163 aviation incident on or about 26 August 2013.

2. b(5) [REDACTED]

3. By copy of this appointing order, Administrative Section, is directed to furnish necessary clerical assistance.

b(3), b(6), b(7)(C) [REDACTED]

Copy to:

b(3) [REDACTED]

File

FOR OFFICIAL USE ONLY

FLIGHT NOTES:

1. PRIORITIES 1) FERRY TO KING 2) AS TGT INST 3) AREA FAMILIAR CAL
2. VMS-303 TO COVER VMS-103 ODO
3. CREECH AIRFIELD PRR-228LONS
4. EVENT TO RETURN TO KING FOR HIS TO COL BRNCA & LT COL CHANNA
5. EVENT TO GET GOLD FUEL AT KING
6. UTILIZE CAL AREA WITHIN CREECH TOWER'S AIRSPACE
7. 2400-2500L R-2414 MEMORIED
8. 2415-2400G AND 11200 BOUNDS OF 7.0200 PER AIRCRAFT
9. EVENT TO RETURN AT NPL
10. 0 TO GIVE ACAD-2810 AND 5211 AREA TO b(3) b(6) CONJUNCTION WITH KING
11. 1230 b(3) b(6)
12. IF NOT ACTIVATED, WALK LOG CREW TO FLY 23 INST

TO BRIEF IN CREECH HANGAR SPACES

GENERAL NOTES:

TIME	EVENT	LOCATION	PERSONNEL
1630	FOD WALK	HANGAR 8	ALL HANDS
1800	CREECH COURSE RULES BRIEF	CREECH HANGAR SPACES	ALL AVAILABLE CREECH-DFT AIRCREW
1900	1 CAD 2310 & 2317	READY ROOM	CPL KRIS AND LT COL BRNCA NASH
1900	CREECH COURSE RULES BRIEF	CREECH HANGAR SPACES	ALL AVAILABLE CREECH DFT AIRCREW

QUESTIONS
MV-22B EF
MV-22B NATOPS
MV-22B TACTICS
NBC

500 2011
ONE INSTALLED IN EACH AIRCRAFT (DAY) CONTROL THE INFORMATION DISPLAYED ON THE DE-OP. EACH DEB CONTROLS OPERATOR OF
EFOR IN THE EVENT OF A DEB FAILURE (TWO DEB TWO DEB)
THE MAX RANGE OF A CDRN IS 1000 FT (1000 FT)
WHICH IS MORE AS REPORT AT UNDERSTANDING: 1000 FT AND 2000 FT

ONE IN CDRN NAME IN 100

b(3) b(6), b(7)(C)

FOR OFFICIAL USE ONLY

MISHAP REPORT

Location: Indian Springs NV/ Creech Air Force Base; approximately 1.5 mile northeast of the airfield.

Date/Local Time: 26 August 2013 at approximately 2240z (1340L)

Call Sign: Evileye42/ tail number unknown

Type of A/C: MV-22B/ VMM 163 (command)

ATC/ATCALS Used: Evileye42 was not on tower frequency.

Current Status of Equipment used: SAT/Operational

Were Control Instructions Recorded and Readable?: Evileye42 was not on tower frequency at the time of the crash.

Was a watch supervisor or senior controller on duty? Include actions at time of occurrence: Watch Supervisor concept was in effect. All positions were manned; SOF was out of facility.

Number of Qualified/Skilled controllers scheduled for Duty, on Duty and in Position: 3 controllers on Duty; all controllers in position.

Brief Narrative of the Event: Factual Information Only: At 2240z, LC controller observed smoke and fire one mile northeast of the airfield. FD/GC immediately activated the crash phone. Once the crash phone was activated, all b(3), b(6), b(7)(C) conducted and completed appropriate checklists. The aircraft (MV-22B) crashed in 64C. Air operations were not affected. Airfield remains open.

Weather information at the time of the crash – KINS METAR 2158z 090/16 10SM FEW150 SCT200 24/16 ALSTG 30.06 PA +2996 DA 4979

b(3), b(6), b(7)(C)

8/26/2013

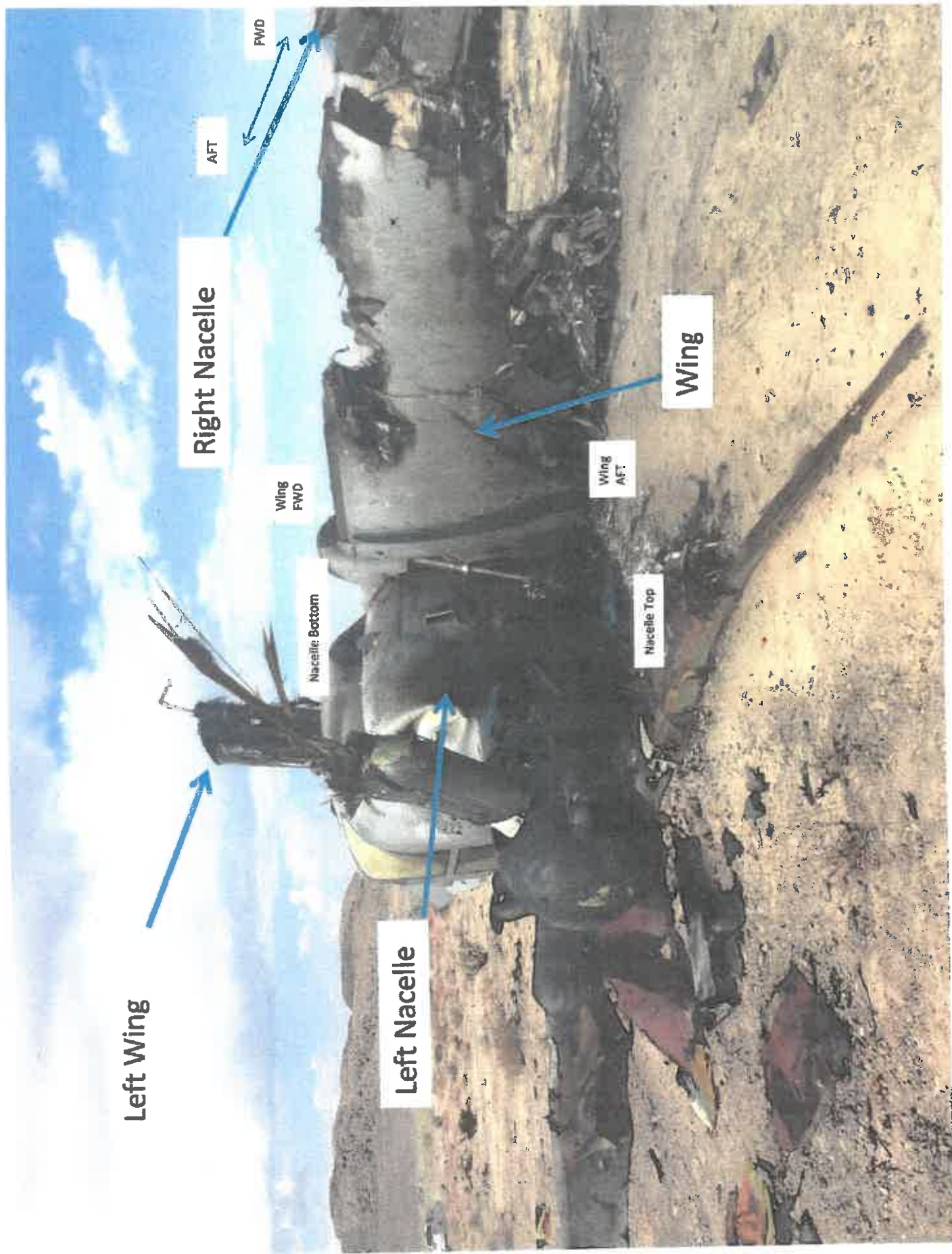
5

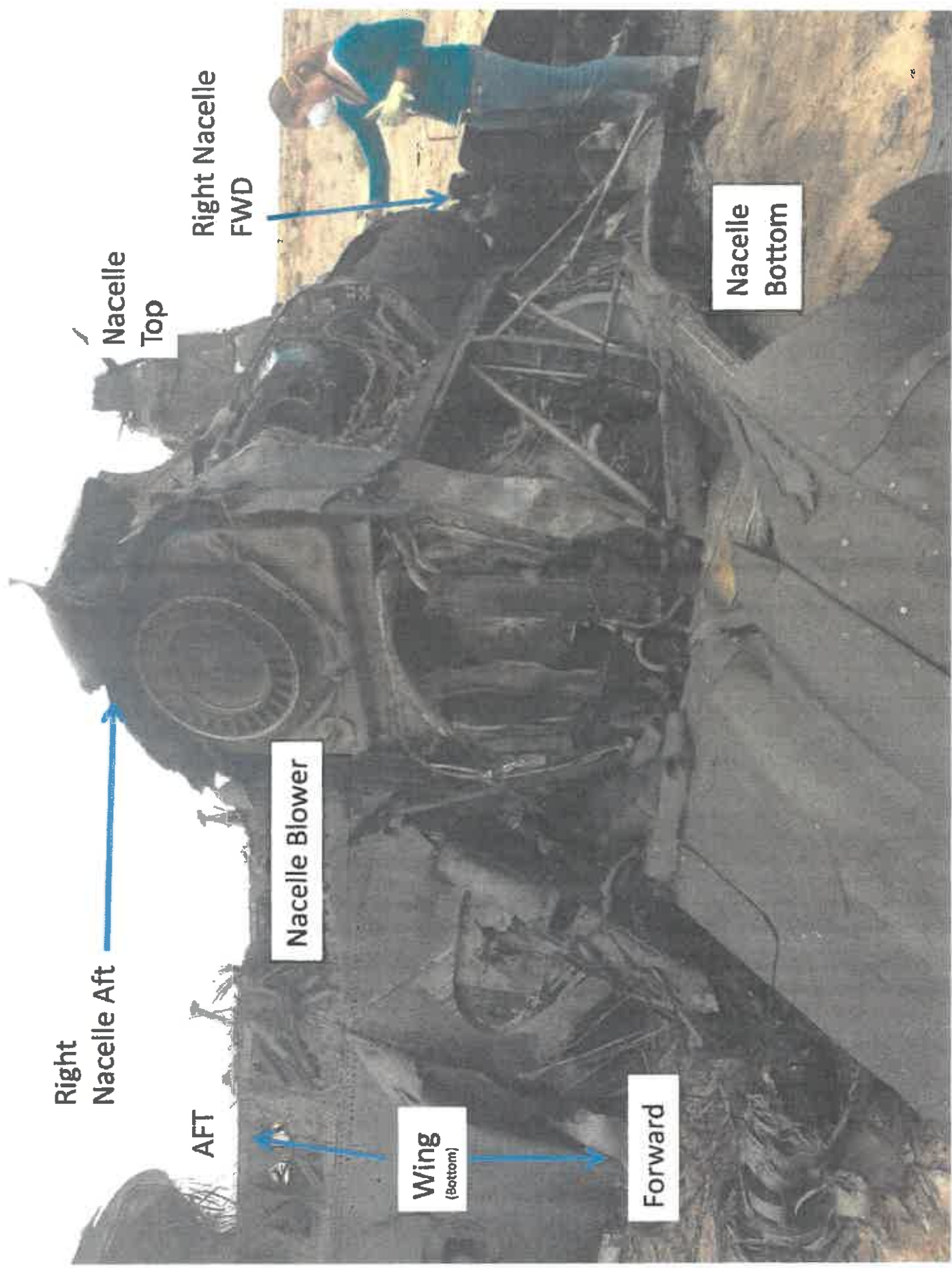




Right Nacelle
(located below the fuselage and aft of the left nacelle)

Left Nacelle





Right

Nacelle Aft



Nacelle
Top

AFT

Nacelle Blower

Right Nacelle
FWD

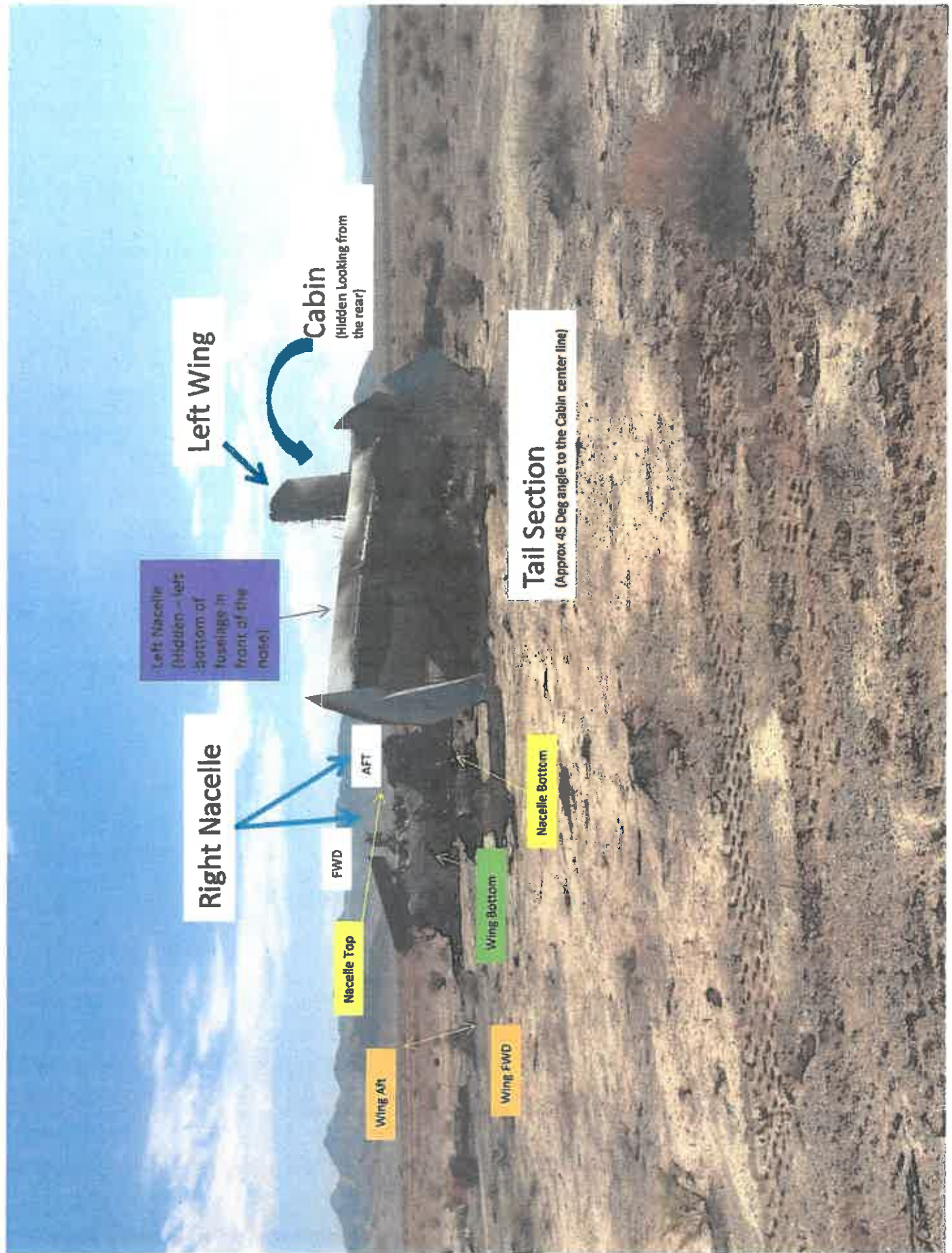


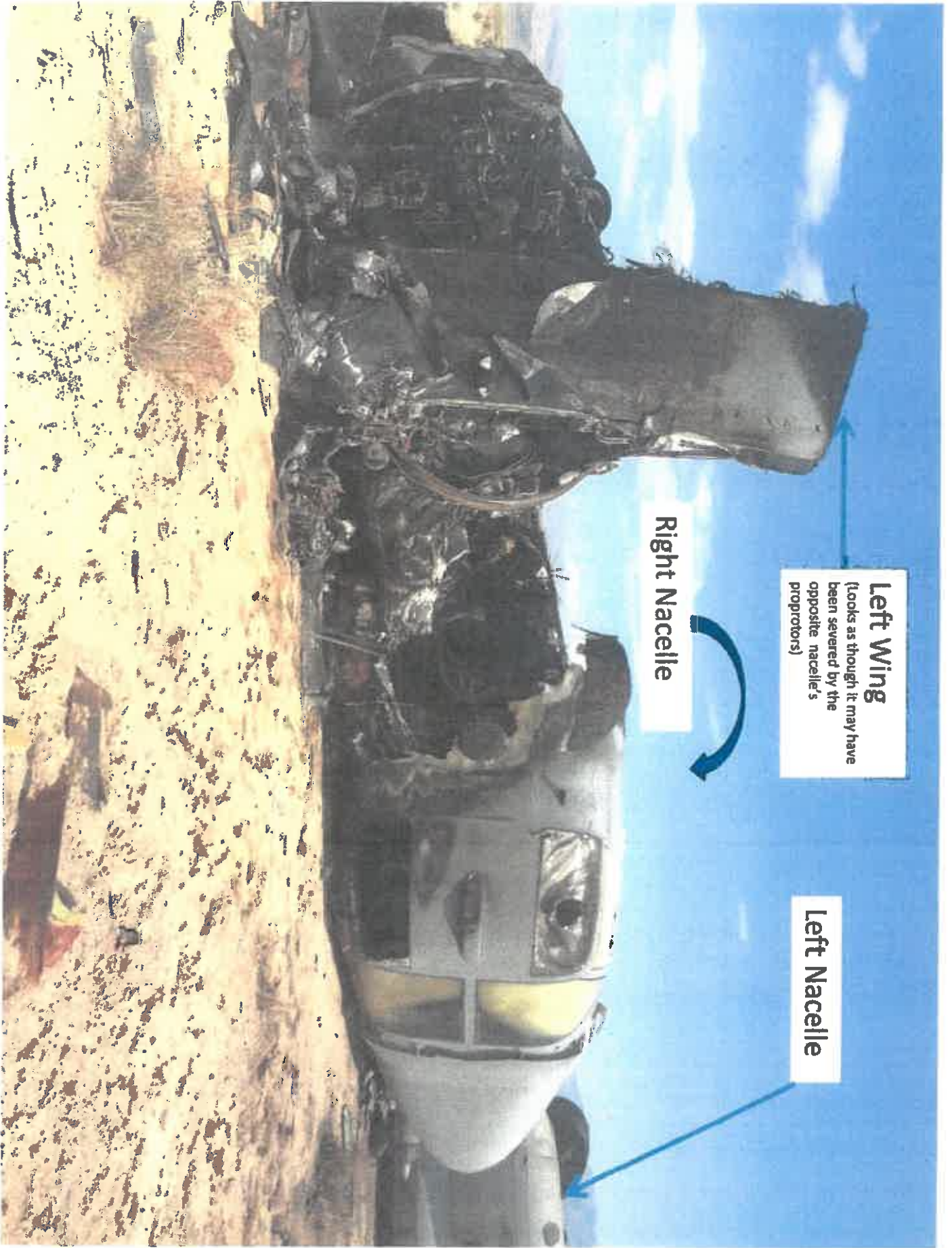
Nacelle
Bottom

Wing
(Bottom)



Forward





STEP 17

S-3

REQUEST WEATHER CONDITIONS

1. CONTACT STATION WEATHER AND REQUEST A MISHAP WEATHER REPORT. THIS REPORT SHOULD INCLUDE THE ACTUAL WEATHER AT THE TIME AND LOCATION OF MISHAP AND THE FORECASTED WEATHER THE PILOT RECEIVED PRIOR TO TAKEOFF. IF THE MISHAP OCCURRED OUT OF THE LOCAL AREA, CALL THE NEAREST MILITARY FIELD FOR ASSISTANCE.
2. IT IS ESSENTIAL TO THE MISHAP INVESTIGATION THAT YOU OBTAIN THE ACTUAL WEATHER OBSERVATION AT THE MISHAP.
3. CONTACT THE WEATHER OFFICE NEAREST TO THE MISHAP SITE AND OBTAIN THE NECESSARY INFORMATION. THE PHONE NUMBER TO WEATHER AT (MCAS MIRAMAR) WEATHER IS (858-577-4028/1533).

MCAS MIRAMAR DSN 267-4028/4029
MCB CAMP PEN DSN 365-8374
29 PALMS DSN 230-7831
MCAS YUMA DSN 269-2265

4. WEATHER UNDERGROUND ALSO CAN BE A VERY USEFUL AT FINDING OUT THE WEATHER IN REMOTE PLACES. WWW.WUNDERGROUND.COM.
5. FSS WILL BE CONTACTED IF PILOT RECEIVED A WX BRIEF FROM THAT AGENCY. 1-800-WXBRIEF.
6. USE THE FOLLOWING WORKSHEET TO FILL OUT THE WEATHER REPORT.

A. DATE AND TIME OF REPORT: 26 Apr 2131Z
(DAY/NIGHT)

B. BRIEFED BY: [REDACTED] b(3), b(6), b(7)(C) [REDACTED]

C. WEATHER AS BRIEFED:

(1) AIR TEMP:	<u>29</u>
(2) REL HUM:	<u> </u>
(3) DEW PT:	<u>16</u>
(4) WATER TEMP:	<u> </u>
(5) WIND DIR:	<u>330</u>
(6) WIND VEL:	<u>07</u>
(7) WIND GUSTS:	<u> </u>
(8) CEILING:	<u>OKN 15000</u>
(9) SKY COND:	<u> </u>
(10) HORIZON:	<u> </u>

(11) VISIBILITY: UNLIMITED
(12) OBSTRUC: _____
(13) ALTIMETER: 2979
(14) ICING: 13000
(15) PRECIP: _____
(16) EXTREME WX: _____

E. TEMPO: _____

F. ACCURACY OF BRIEF: _____

G. FORECAST WEATHER: _____

ISOLATED T-STEM IN THE AREA

H. VALID TIME OF FORECAST: 1558Z LOCAL

I. ACTUAL WEATHER: 1530

(1) AIR TEMP: 25
(2) REL HUM: -
(3) DEW PT: 14
(4) WATER TEMP: -
(5) WIND DIR: 110
(6) WIND VEL: 14
(7) WIND GUSTS: -
(8) CEILING: -
(9) SKY COND: SK 15000 4-10000
(10) HORIZON: -
(11) VISIBILITY: 7SM
(12) OBSTRUC: -
(13) ALTIMETER: 3006
(14) ICING: -
(15) PRECIP: -
(16) EXTREME WX: -

J. FORECASTER'S NAME: b(3) [REDACTED]

K. FORECASTER'S PHONE NUMBER: _____

TIME COMPLETED: _____

PERSON NOTIFIED: _____



DEPARTMENT OF THE NAVY
HELICOPTER TRAINING SQUADRON EIGHT
3416 USS ENTERPRISE ST SUITE 101
MILTON, FL 32576-0010

MINIPLY REFLECTS

1210
Code 70
8 Jun 07

From: b(3), b(6), b(7)(C) [REDACTED] Helicopter Training Squadron EIGHT
To: b(3), b(6) [REDACTED] USMC

Subj: DESIGNATION AS A NAVAL AVIATOR

1. As of 8 June 2007, you are designated a Naval Aviator by the Chief of Naval Air Training in recognition of your successful completion of the prescribed course of instruction.

b(3), b(6), b(7)(C)

Copy to:
NATOPS
HT-8 ADMIN
Service Record
CMC (MMOA-A)
CMC (MMOA-20)

b(3), b(6), b(7)(C)

b(3), b(6),
b(7)(C)

b(3), b(6), b(7)(C)

SQUADRON UNIT VMM-163	AIRCRAFT MODEL MV-22B	CLASS POSITION TAC
TOTAL FLIGHT HOURS 1073.3	TOTAL TBG/BSR HOURS 502.3	DATE OF LAST EVALUATION 20 OCT 2011
NATOPS EVALUATION		
REQUIREMENT	DATE COMPLETED	GRADE
OPEN BOOK EXAMINATION	15 OCT 2012	Q CO U
CLOSED BOOK EXAMINATION	15 OCT 2012	Q
ORAL EXAMINATION	16 OCT 2012	Q
EVALUATION FLIGHT	16 OCT 2012	Q
DEFENSE	3 JAN 2012	Q
ANNUAL CRM/CRM FLIGHT	16 OCT 2012	Q
FLIGHT EVALUATION 3.0	AIRCRAFT GRADE CFTD-5	OVERALL GRADE Qualified

REMARKS OF EVALUATOR/INSTRUCTOR

b(3), b(6), b(7)(C) NATOPS evaluation flight was conducted in accordance with STAN manual, and all emergency procedures were demonstrated in accordance with the NATOPS manual. Scenario planned covered all aspects of a solid NATOPS check to include emergencies, mission management, maneuvers, CRM, and emergency egress. He was well prepared and exhibited great knowledge of all aircraft limitations and systems. b(3), b(6), b(7) is well qualified to serve as a Tiltrotor Aircraft Commander.

Strengths: Aircraft system knowledge, CMS knowledge, BAW, emergency procedures.

Weaknesses: None noted.

Annual CRM Flight conducted in accordance with OPNAVINST 1542.7C

Annual Egress Training conducted in accordance with OPNAVINST 3710.7U

EXPIRES: 31 Oct 2013

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

DATE
16 OCT 2012

b(3), b(6), b(7)(C)

DATE
16 OCT 2012

REMARKS OF UNIT COMMANDER

b(3), b(6), b(7)(C)

IS A MAJOR AND DEDICATED PILOT WHO HAS MY HIGHEST CONFIDENCE IN HIS ABILITY TO PERFORM THE DUTIES OF AN MV-22B AIRCRAFT COMMANDER.

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

DATE
16 OCT 2012

*WST, DFT, GDT, or cockpit check in accordance with
A-7247

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

29 OCT 12

VMM-163, MAG-16, 3D MAW

☒ STANDARD ☐ SPECIAL

EXPERIENCE SUMMARY

MISCELLANEOUS SUMMARY

INSTRUMENT PILOT TIME

ITEM	LAST 6 MO	LAST 12 MO	ITEM	PER SEC	LAST 6 MO	LAST 12 MO
PRECISION APPROACHES	16	25	ACTUAL	6.8	10.5	85.4
			SIMULATED	21.9	36.1	153.9
NON-PRECISION APPROACHES	7	12	INSTRUMENT PILOT TIME TOTAL	28.7	46.6	239.3
TOTAL PILOT TIME	1085.3		TOTAL YEARS FLYING EXPERIENCE (Military and Civilian)	7 YEARS 6 MONTHS		

AIR CRAFT QUALIFICATION

MV-22

STANDARD

14 MAY 1977

SIGNATURE OF APPLICANT

THIS IS TO CERTIFY THAT THE APPLICANT

☒ SATISFACTORILY ☐ UNSATISFACTORILY

COMPLETED THE INSTRUMENT PILOT TIME EXAMINATION

PASS

SIGNATURE OF INSTRUMENT PILOT

MAG-39, 3D MAW

DATE 26 OCT 12

TECHNICAL EVALUATION	PART ONE (Basic Instrument)		QUAL	UNQUAL	PART TWO (Instrument Flight within 100 miles and approach on VORTAC or VORTAC)		QUAL	UNQUAL
	1	2			1	2		
	1. INSTRUMENT FLIGHT - GENERAL		X		1. FLIGHT PLANNING		X	
	2. CLIMBING, DESCENDING AND TURNING		X		2. CLEARANCE COMPLIANCE		X	
	3. STEEP DESCENT		X		3. INSTRUMENT APPROACHES		X	
	4. RECOVERY FROM UNUSUAL ALTITUDE		X		4. COMMUNICATIONS AND NAVIGATION EQUIPMENT		X	
	5. VORTAC POSITIONING		X		5. EMERGENCY PROCEDURES		X	
	6. PARTIAL PANEL AIRWORK		X		6. VOICE PROCEDURES		X	
	7. APPROXIMATE ORIENTATION		DND					

b(3), b(6), b(7)(C)

HE FLEW A GOOD INSTRUMENT CHECK IN THE SIMULATOR IAW GENAVIST 3710 AND THE V-22 NFM. HE WAS WELL PREPARED FOR THE EVENT WITH A COMPLETED DD-175, A COMPLETED EVALUATION KNEEBOARD CARD, A ROUTE CARD, AND CHECK LOADED WITH THE ROUTE OF FLIGHT. THE EVENT DEPARTED FROM KNEK ON THE REDWHL FOR A ILS Y-32 AT KRIV, LOC-19 AT KRNA, TON Z 21 AT KHPG AND ILS-32 TO KNEK. THE BRIEF COVERED FILING PER THE GR, WX REQUIREMENTS, FILING MINS, APPROACH PLATE SYMBOLOGY, AND LOST COMM PROCEDURES. LOST COMMS WAS CONDUCTED PER THE FIH. WEATHER WAS IMC FOR THE ENTIRE FLIGHT, AND MULTIPLE EPS WERE HANDLED IAW NATOPS. WELL PREPARED TO HOLD AN INSTRUMENT RATING AS A NAVAL AVIATOR.

Weaknesses: NONE

DATE OF EXAMINATION	AIRCRAFT MODEL	EXAM	INSTRUMENT PILOT TIME	GRADE
29 OCT 12	MV-22	CPTD-4	8	STANDARD

21 OCT 13

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

Instrument Evaluator

CODE CODE
25
ed
head
S
(N)
SSD
SSD
SSD

CLEARANCE NOTICE (Aeromedical)

AUTHORIZED FOR LOCAL REPRODUCTION

DATE 11-JUN-2013	FROM FLIGHT SURGEON	TO b(3), b(6), b(7)(C) VM-163
NAME b(3), b(6), b(7)(C)		SSN b(3), b(6), b(7)(C)
RANK/SERVICE b(3), b(6), b(7)(C)		HR Loc VM-163

Recommend subject individual be found physically qualified and aeronautically adapted for duty involving flight as:

Class 1: ☐ SNA ☒ SGI ☐ SGII ☐ SGIII

Class 2: ☐ SNFO ☐ NFO ☐ ATC ☐ AC/SAR ☐ AC/FW ☐ Other

Waiver has been ☐ recommended ☐ granted for:

2. ☐ Corrective lens required in performance of flight duties
☐ Corrective lens required and extra pair must be carried in performance of flight duties (DVA < 20/100)

3. ☒ Checkin / Annual Physical Examination
☐ Following Aircraft Mishap/Incident
☐ Return from sick/grounded list
☐ Other (specify)

DATE GROUNDED	REASON

EXPIRATION DATE OF CLEARANCE	SIGNATURE
31 MAY 2014	b(3), b(6), b(7)(C)

ORIGINAL TO:	TRNG OFF	FILES	OTHER
<input checked="" type="checkbox"/> CO	<input checked="" type="checkbox"/> OPER OFF	<input checked="" type="checkbox"/> b(3), b(6), b(7)(C)	<input type="checkbox"/> b(3), b(6), b(7)(C)

NAME/ID 61502 11-JUN-2013 by (Date)

(Name) (Unit)

NAME/ID 61502 (12-55) SIN 0105-LF-010-1700

THE VME TO FILE OK TO FILE WE 1 HEH V S SHO D M TRUI V OF SIT V H

NATOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET
OPNAV 3780/22C (4-81) SN 0107-LF-735-2140

SECTION IIA - FLIGHT PERSONNEL DESIGNATION RECORD

NAME (Last, first, middle initial)

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

DATE	DESIGNATION	MODEL	UNIT	PROMULGATION BY	VERIFIED
01 JUN 07	NAVAL AVIATOR	—	HT-8	b(3), b(6), b(7)(C)	b(3), b(6), b(7)(C)
1 JUL 07	H2A	24-4E	HMM-163		
23 JAN 08	HAC	24-4E	HMM-204		
13 MAR 07	ODG	MU-2B	VMMT-204		
15 DEC 07	T2P	MU-2B	VMMT-204		
07 JUL 09	ODG	MU-2B	VMM-163		
10 NOV 10	TAC	MU-2B	VMM-264		
23 JAN 11	FCP	MU-2B	VMM-264		b(3)
23 MAR 11	SEC LEAD	MU-2B	VMM-264		b(6)
14 FEB 12	LAT-I DIV-LDR ONV	MU-2B	VMM-163		b(7)(C)
14 FEB 12	T2P	MU-2B	VMM-163		
↓	TAC	↓	↓	↓	↓
↓	FCP	↓	↓	↓	↓
↓	SEC LD	↓	↓	↓	↓
19 JAN 12	TTU I	MU-2B	VMMT-204	b(3), b(6), b(7)(C)	b(3), b(6), b(7)(C)
26 APR 12	DIV LD	MU-2B	VMM-163		
28 JUN 12	NSI	MU-2B	VMM-163		
12 JUL 12	BIP	MU-2B	VMM-163		
* 14 FEB 12	ACCEPTANCE	MU-2B	VMM-163		
6 MAR 13	AARI	MU-2B	VMM-163		

CP 664V 376032H (A-81) 024 D107-07-756-2160

NAME _____

b(3), b(6), b(7)(C)

[illegible]



DEPARTMENT OF THE NAVY

TRAINING AIR WING FOUR
245 FIFTH ST SUITE 105
CORPUS CHRISTI TX 78410-5242

1500

Ser N00/ 1048

SEP 26, 2012

FROM: [REDACTED] b(3) b(6) b(7)(C)

TO:

USMC

531

SUBJ: DESIGNATION AS A NAVAL AVIATOR

REF: (a) CNATRAINST 1500.4G w/ch-1, 2 & 3

1. Pursuant to the provisions of reference (a), and having demonstrated those qualities of sound judgment and professional competence in your completion of the Advanced Multi-Engine Flight Training Syllabus of the Naval Air Training Command, you are designated a Naval Aviator effective 28 Sept 2012.

2. Congratulations on a job well done!

[REDACTED] b(3) b(6) b(7)(C)

Copy to:
MATSG-22
VT-35

Port

100

10

1. Cockpit
 2. Aircraft Control
 3. Procedures
 4. Emergency Procedures (critical maneuvers)
 5. Noise Low
 6. Normal
 7. High
 8. Maximum
 9. Minimum
 10. Other

NATOPS EVALUATION REPORT
 (OPNAV 3710.7 (4-80) CONTINUED)

b(3), b(6), b(7)(C)		GRADE	b(3), b(6), b(7)	DATE
ACRONYM	VMMT-204	AIRCRAFT MODEL/SERIES	MV-22B	DATE FIRST
DATE OF EVALUATION	28 Feb 13	DATE OF EVALUATION	28 Feb 13	DATE OF EVALUATION
NATOPS EVALUATION				
REQUIREMENT	DATE COMPLETED	GRADE	Q	EQ
ENTRY/EXIT EVALUATION	26 Feb 13	4.0		
CRUISE EVALUATION	26 Feb 13	4.0		
FINAL EVALUATION	28 Feb 13	0		
EGRESS	18 Mar 13	0		
EVALUATION FLIGHT	08 Mar 13	0		
EGRESS	1.6	AIRCRAFT BUNO	168019	FINAL GRADE
				QUALIFIED

REMARKS OF THE EVALUATOR/TECHNICIAN

b(3), b(6), b(7)(C) NATOPS evaluation was conducted in aircraft 31 within the local area. Flight departed KNCA direct KEWN for FAM maneuvers to Rwy 32. Flight departed Rwy 32 for CALS and maneuvered via PAR Rwy 22 at KNCA. We was clear and winds moderate out of the weather. b(3), b(6), b(7)(C) completed all required maneuvers including extension and airplane mode patterns, steep approaches, STCs, ROLs, ROLs, wave-offs and aborted takeoffs in accordance with the NATOPS CRM drills involving b(3), b(6), b(7)(C) and planning, cargo loading, and power calculations were conducted on route and on deck throughout the flight. b(3), b(6), b(7)(C) performed all tasks in a timely manner. Numerous simulated CPs were also introduced and handled in a timely manner. b(3), b(6), b(7)(C) was well prepared and demonstrated good knowledge of aircraft systems and operation. He demonstrated basic aircraft control and situational awareness throughout the flight. b(3), b(6), b(7)(C) is well qualified as a T2P.

Strengths: BAW, SA, and knowledge

Weaknesses: Headwork lacking during high workload or unfamiliar situations.

Annual Egress was performed IAW OPNAVINST 3710.7 Series

Annual CRM evaluation flight conducted IAW OPNAVINST 1542.7 Series

EXPIRES: 31 Mar 14

DATE	08 Mar 13
DATE	08 Mar 13

DATE	08 Mar 13
------	-----------

*RST, CPT, COT, or cockpit check in accordance with OPNAVINST 3710.7

A-9247

NAME (Last, First, Middle Initial) **b(3), b(6), b(7)(C)**

b(3), b(6), b(7)(C)

VMMT-204, MCAS New River

APPLICANT HAS BEEN MADE FOR AN INSTRUMENT RATING BY:

☒ STANDARD ☐ SPECIAL

EXPENSE SUMMARY

MISCELLANEOUS SUMMARY			INSTRUMENT PILOT TIME			
ITEM	LAST 6 MO.	LAST 12 MO.	ITEM	PAST 6 MO.	LAST 12 MO.	TOTAL ALL YEARS
PRECISION APPROACHES	10	30	ACTUAL	8	5.3	14.1
			SIMULATED	8.1	52.9	72.5
NON-PRECISION APPROACHES	9	46	INSTRUMENT PILOT TIME TOTAL		8.9	58.2
			TOTAL YEARS FLYING EXPERIENCE		2.5 yrs	

TOTAL PILOT TIME 226.2

AIRCRAFT OPERATIONS

V-22

CURRENT RATING

STANDARD

DATE OF EXAMINATION

10 APR 1984

b(3), b(6), b(7)(C)

b(3)

THIS IS TO CERTIFY THAT THE APPLICANT HAS:

☒ SATISFACTORILY ☐ UNSATISFACTORILY

COMPLETED THE WRITTEN EXAMINATION FOR AN INSTRUMENT

RATING AS REQUIRED BY THE INSTRUMENT RATING MANUAL

BY EXAM (Date)

PASSED

SIGNATURE OF EXAMINER

Online KGS

Verified by

UNIT

VMMT-204

25 JAN 13

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

FACTOR	CRITICAL	NON-CRITICAL	CRITICAL	NON-CRITICAL
1. INSTRUMENT TAKEOFF (One-way)	X		X	
2. CLIMBING, DESCENDING, AND CRUISE TURN	X		X	
3. APPROACHES	X		X	
4. RECOVERY FROM UNUSUAL ATTITUDES	X		X	
5. VERTICAL MANEUVERING	X		X	
6. PARTIAL PANEL AIRWORK	X		X	
7. ADVERSE ORIENTATION	NA			
8. INSTRUMENT FLIGHT WITH CONTROL DEVICES WITH EMPHASIS ON TACAN AND VORTAC				
9. NIGHT PLANNING				
10. CLEARANCE COMPLIANCE				
11. INSTRUMENT APPROACHES				
12. COMMUNICATIONS AND NAVIGATION EQUIPMENT				
13. EMERGENCY PROCEDURES				
14. VOICE PROCEDURES				

* Not required when evaluation is conducted under actual instrument conditions

REMARKS

b(3), b(6) Instrument Check was conducted in the simulator to maximum severity and evaluation. The flight departed from KNCA to KGSB, KFAY, KIEM, then KNCA for multiple instrument approaches **b(3), b(6)** performed an ITO, SID, en route airway navigation, TACAN P to P, holding, unusual attitudes and partial panel work. Throughout the flight **b(3), b(6)** was given numerous Emergency Procedures with varying landing criteria. Weather was adjusted throughout the flight to remain at published minimums for the requested approaches. **b(3), b(6)** demonstrated sound CRM and headwork throughout the flight **b(3), b(6)** is a well qualified to hold a standard instrument rating in the V-22.

DATE OF FLIGHT: 10 APR 84 AIRCRAFT MODEL: MV-22B UNIT: FFS3 INSTRUMENT RATING: ☒ STANDARD ☐ SPECIAL SIGNATURE: 28 FEB 14

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

CLEARANCE NOTICE (Aeronautical)

Date: 15 MAY 13

From: MAG-16

To: VMM-163 b(3) b(6)
b(7)(C)

0000000000

Name: b(3)
SSN: b(3)
Rank/Service: 1ST LT USMC
HR Loc: MAG-16 FLAS

1. Recommend subject individual be found physically qualified and aeronautically adapted for duty involving flight is:

Class 1: ☐ SNA ☒ S3B ☐ S3H ☐ SGH ☐ SGH

Class 2: ☐ SNFO ☐ NFO ☐ ATC ☐ ACSAR ☐ ACFW ☐ Other

Waiver has been (recommended) (granted) for:

2. ☐ Corrective lens required in performance of flight duties.
☐ Corrective lens required and extra pair must be carried in performance of flight duties (DVA < 20/100).

3. ☒ Checkin/Annual Physical Examination.
☐ Following Aircraft Mishap/Incident.
☐ Return from sick/grounded list.
☒ Other (specify)

4. Date grounded: _____ Reason: 30 APR 14
Expiration date of clearance: _____
Original to: ☒ CO ☐ Oper. Off.
Copy to: ☐ ☐ Trng. Off.

b(3) b(6), b(7)(C)

Signature: _____
☒ FS ☐ Other
if other, received concurrence from:

Name: VMM-163
Unit: _____

b(3) b(6), b(7)(C)

NAVJMED 6150/2 15 MAY 13 by _____
(Date)

S/N 0105-18-010-1700

NAVJMED 14102 (Rev. 4-90)

SECTION II - MISSION QUALIFICATION RECORDS

b(3). b(6). b(7)(C)

APR 1990

SECTION IVB - MISHAP/FLIGHT VIOLATION RECORD

b(3), b(6), b(7)(D)

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

SECTION IV

ॐ



UNITED STATES MARINE CORPS
MARINE MEDIUM TILTROTOR SQUADRON 163
MARINE AIRCRAFT GROUP 16
MCAS MIRAMAR
PO BOX 452117
SAN DIEGO, CA 92145-2117

IN REPLY REFER TO:

3710

b(3),

1 Aug 12

From: b(3), b(6), b(7)(C) Marine Medium Tiltrotor Squadron 163
To: b(3), b(6), b(7)(C) 8/6176 USMC

Subj: ACCEPTANCE OF DESIGNATIONS

Ref: (a) OPNAVINST 3710.70
(b) A1-V22AB-NFM-000
(c) NAVMC 3500.14B
(d) NAVMC 3500.11B
(e) MAWTS-1 Course Catalog

1. Per the references, and having demonstrated the knowledge, proficiency, and the capabilities required in the MV-22B aircraft, I accept the following aircrew designations approved by the Commanding Officers of previous units. You are hereby re-designated:

Designation	Original Effective Date
CREW CHIEF	14 Jun 12
TILTROTOR LOW ALTITUDE TACTICS INSTRUCTOR	
NIGHT SYSTEMS INSTRUCTOR	
TAIL GUNNERY INSTRUCTOR (M240)	
TAIL GUNNERY INSTRUCTOR (GAU-16/A)	
DEFENSIVE COMBAT MANEUVERS INSTRUCTOR	
CREW RESOURCE MANAGEMENT FACILITATOR	
CREW RESOURCE MANAGEMENT INSTRUCTOR	
ASSISTANT NATOPS INSTRUCTOR	
NATOPS INSTRUCTOR	
WEAPONS AND TACTICS INSTRUCTOR	

2. An appropriate entry will be made in your NATOPS flight Personnel Training/Qualification Jacket, Aviator Flight Logbook, and Aircrew Performance Record.

b(3), b(6), b(7)(C)

Copy to:

b(3), b(6), b(7)(C)

b(3)

M-SHARP																								
Dashboard		Main		Scheduling		Setup		Help		LogOff														
Unit: VMH-163		Person: 5(3)		TMS: MV-228		Flight Type: A/C		Sens: All		5/26/2013 - 8/26/2013		Export												
Flight Details																								
Date	Model	PIRG	TOT	FT	COT	ACDR	SC	COMBAT	REL	ELL	EWING	Total Hrs	ACT	SH	RAM	WTE	PA	NDA	PS	NPS	Task Code(s)			
05/20/2013	MV-228	168281	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.4	0.0	3.4	0.0	0.0		3.4	0	0	0	0	2385, 2384			
06/01/2013	MV-228	168234	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0		2.0	0	0	0	0	2551			
06/03/2013	MV-228	168234	0.0	0.0	0.0	0.0	4.8	0.0	0.0	4.8	0.0	4.8	0.0	0.0		4.8	0	0	0	0	2133, 2136, 2163			
06/24/2013	MV-228	167807	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0	0	0	0				
06/28/2013	MV-228	168234	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0		3.0	0	0	0	0	2133, 2136, 2163			
07/03/2013	MV-228	168386	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0		3.0	0	0	0	0	2133, 2136, 2163			
07/09/2013	MV-228	168242	0.0	0.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	4.0	0.0	0.0		4.0	0	0	0	0	4020, 4012, 4020			
07/11/2013	MV-228	168005	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0		2.0	0	0	0	0	4030			
07/15/2013	MV-228	167807	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.7	0.0	1.7	0.0	0.0		1.7	0	0	0	0	2132			
07/19/2013	MV-228	168286	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0	0	0	0				
07/29/2013	MV-228	168005	0.0	0.0	0.0	0.0	5.1	0.0	0.0	5.1	0.0	5.1	0.0	0.0		5.1	0	0	0	0	2136, 2163			
07/30/2013	MV-228	168234	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0	0	0	0				
07/31/2013	MV-228	168234	0.0	0.0	0.0	0.0	2.3	0.0	0.0	2.3	0.0	2.3	0.0	0.0		2.3	0	0	0	0	2135, 2131, 2132			
08/08/2013	MV-228	168005	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	0.0	1.8	0.0	0.0		1.8	0	0	0	0	2030			
08/09/2013	MV-228	168242	0.0	0.0	0.0	0.0	2.9	0.0	0.0	2.9	0.0	2.9	0.0	0.0		2.9	0	0	0	0	3933			
08/09/2013	MV-228	166669	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0	2.5	0.0	0.0		2.5	0	0	0	0	2135, 2231			
08/07/2013	MV-228	168242	0.0	0.0	0.0	0.0	3.1	0.0	0.0	3.1	0.0	3.1	0.0	0.0		3.1	0	0	0	0	4033			
08/07/2013	MV-228	168005	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0		1.0	0	0	0	0	2534			
08/08/2013	MV-228	168242	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	0.0	1.8	0.0	0.0		1.8	0	0	0	0	2381, 2382, 2384			
08/09/2013	MV-228	168669	0.0	0.0	0.0	0.0	2.1	0.0	0.0	2.1	0.0	2.1	0.0	0.0		2.1	0	0	0	0	2136, 2163			
Date Range Totals																								
5/25/2013 - 8/26/2013			0.0	0.0	0.0	0.0	63.3	0.0	7.4	10.1	0.0	17.5	0.0	0.0		18.0	0	0	0	0				
Career Totals																								
			0.0	0.0	0.0	0.0	274.3	0.0	37.0	29.7	0.0	66.7	0.0	0.0		71.4	0	0	0	0				

b(3), b(6), b(7)(C)

1 CPL

b(3), b(6), b(7)(C)

NAME: MCAN MIRAMAR

MV-22B

CRBW CHIEF

TOTAL FLIGHT HOURS

268.3

TOTAL HOURS IN MODEL

268.3

DATE OF LAST EVALUATION

23 JUL 2012

NATOPS EVALUATION

REQUIREMENT	DATE COMPLETED	GRADE		
		Q	CC	U
OPEN BOOK EXAMINATION	08 JUL 2013	Q		
CLOSED BOOK EXAMINATION	08 JUL 2013	Q		
ORAL EXAMINATION	09 JUL 2013	Q		
EVALUATION FLIGHT	09 JUL 2013	Q		
WORKS	09 JUL 2013	Q		
ANNUAL CRM/CRM FLIGHT	09 JUL 2013	Q		
CURRENT GRADES	4.0			
AIRCRAFT BLNO	168242			
		OVERALL FINAL GRADE		
		Qualified		

REMARKS OF EVALUATOR/INSTRUCTOR:

b(3), b(6). FLEW HIS ANNUAL NATOPS CHECK RIDE 1AW 3710.7U, A1-V22AB-NFM-000, AND MCO P3500.11B. SNM WAS WELL PREPARED FOR THE FLIGHT BY GIVING A THOROUGH BRIEF AND UTILIZING TIME MANAGEMENT TO PREPARE THE AIRCRAFT FOR FLIGHT. THE FLIGHT CONDUCTED MULTIPLE PARAOPS DROPS IN THE 2510 YUMA RANGE COMPLEX. SNM WAS GIVEN THE EP "LANDING GEAR FAILS TO RETRACT/EXTEND" AND CONDUCTED THE APPROPRIATE STEPS WITHOUT ISSUE. SNM DEMONSTRATED ADEQUATE KNOWLEDGE OF ALL SIMULATED AND ACTUAL EMERGENCY PROCEDURES WITH NO DISCREPANCIES NOTED. b(3) (A), DEMONSTRATED PROFICIENCY WELL ABOVE HIS PEERS AND IS QUALIFIED TO BE A MV-22B CREW CHIEF.

Strengths: SITUATIONAL AWARENESS, CLEAR AND ACCURATE CALLS

Weaknesses: b(3), b(6), b(7)(C) WAS DEBRIEFED ON KEEPING THE PILOTS INFORMED OF ANY JUMPER ACTIVITY, OR CHANGE OF STATE WITHIN THE CABIN.

Annual CRM Flight conducted in accordance with OPNAVINST 1542.7C

Annual Egress Training conducted in accordance with OPNAVINST 3710.7U

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

EXPIRES: 31 JUL 2014

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

DATE
09 JUL 2013

DATE
09 JUL 2013

Signed: [Signature]

Signature of [Signature] MV-22 CREW CHIEF

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

DATE
09 JUL 2013

RATING

CLEARANCE NOTICE (Aeromedical)

DATE 11DEC12	FROM FLIGHT SURGEON	TO [b(3)] - VMM-163
[b(3), b(6), b(7)]		SSN:

RANK/SERVICE LCPL / USMC	HR Loc MAG-16	ELAS
-----------------------------	------------------	------

1. Recommend subject individual be found physically qualified and aeronautically adapted for duty involving flight as:

Class 1: ☐ SNA ☐ SGI ☐ SGII ☐ SGIII

Class 2: ☐ SNFO ☐ NFO ☐ ATC ☐ AC/SAR ☐ AC/FW ☒ Other AC HELO

Waiver has been ☐ recommended ☐ granted for:

- ☐ Corrective lens required in performance of flight duties
- ☐ Corrective lens required and extra pair must be carried in performance of flight duties (DVA < 20/100)

- 3. ☒ Checkin Annual Physical Examination
- ☐ Following Aircraft Mishap/Incident
- ☐ Return from sick/grounded list
- ☐ Other (specify)

DATE GROUNDED

REASON

EXPIRATION DATE OF CLEARANCE
31DEC12

SIGNATURE

ORIGINAL TO:

☒ CO

☒ OPER OFF

☒ TRNG OFF

☒ FS ☐ OTHER

NAVMEC 6150/2

11DEC12

by HN HOLLAND, TREVOR AVTIUSN

NEHC MIRAMAR

(Date)

(Name)

NAVMEC 6410/2 (12-99)

SIN 0105-LF-010-171

b(3), b(6), b(7)(C)

1388

07KAV 2750320 1628 1857

NAFOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET
OPNAV 3700/33D (4-00)

SECTION III - MISSION QUALIFICATION RECORD

NA b(3), b(6), b(7)(C)

SSN

[illegible]

ACCIDENT AND FLIGHT RULE VIOLATION RECORD

SUMMARY RECORD. (Negative report by zero number of incidents; to be signed by Commanding Officer or his authorized deputy)

	PERIOD		NUMBER OF		SIGNATURE
	YEAR	QUARTER	ACCI- DENTS*	RULE VIOL.	
Summary incidents prior to this log book 1-1-56	19				Signatures on record in previous log book authenticated:
	19				
	19				
	19				
	19				
	19				
Year in which this log book began	1956	Jan-Mar			
		Apr-Jun			
		Jul-Sep	0		
		Oct-Dec	0		
Period covered by this log book	19	Jan-Mar			
		Apr-Jun			
		Jul-Sep			
		Oct-Dec			
	19	Jan-Mar			
		Apr-Jun			
		Jul-Sep			
		Oct-Dec			
	19	Jan-Mar			
		Apr-Jun			
		Jul-Sep			
		Oct-Dec			
19	Jan-Mar				
	Apr-Jun				
	Jul-Sep				
	Oct-Dec				
19	Jan-Mar				
	Apr-Jun				
	Jul-Sep				
	Oct-Dec				
19	Jan-Mar				
	Apr-Jun				
	Jul-Sep				
	Oct-Dec				

b(3), b(6), b(7)(C)

VERIFIED
JUN 11 1956



UNITED STATES MARINE CORPS
MARINE MEDIUM TILTROTOR SQUADRON 163
MARINE AIRCRAFT GROUP 16
MCAS MIRAMAR
PO BOX 452117
SAN DIEGO, CA 92145-2117

IN REPLY REFER TO:

3710

b(3)

b(6) 12

From: b(3), b(6), b(7)(C) , Marine Medium Tiltrotor Squadron 163
To: b(3), b(6), b(7)(C) /6176 USMC

Subj: ACCEPTANCE OF DESIGNATIONS

Ref: (a) OPNAVINST 3710.7U
(b) A1-V22AB-NFM-000
(c) NAVMC 3500.14B
(d) NAVMC 3500.11B
(e) MAWTS-1 Course Catalog

1. Per the references, and having demonstrated the knowledge, proficiency, and the capabilities required in the MV-22B aircraft, I accept the following aircrew designations approved by the Commanding Officers of previous units. You are hereby re-designated:

Designation	Original Effective Date
CREW CHIEF	24 Aug 11
TILTROTOR LOW ALTITUDE TACTICS INSTRUCTOR	
NIGHT SYSTEMS INSTRUCTOR	
TAIL GUNNERY INSTRUCTOR (M240)	
TAIL GUNNERY INSTRUCTOR (GAU-16/A)	
DEFENSIVE COMBAT MANEUVERS INSTRUCTOR	
CREW RESOURCE MANAGEMENT FACILITATOR	
CREW RESOURCE MANAGEMENT INSTRUCTOR	
ASSISTANT NATOPS INSTRUCTOR	
NATOPS INSTRUCTOR	
WEAPONS AND TACTICS INSTRUCTOR	

2. An appropriate entry will be made in your NATOPS flight Personnel Training/Qualification Jacket, Aviator Flight Logbook, and Aircrew Performance Record.

b(3), b(6), b(7)(C)

Copy to:

b(3), b(6), b(7)(C)

M-SHARP

Dashboard Main Scheduling Setup Help LogOff

LINE: VMW-152

Person: [REDACTED] 6/21

3 TMS: MV-220

Flight
Time:

A/C

Suma

5/25/2013 - 8/26/2013

Export

FLIGHT DETAILS

[illegible]

DATE RANGE TOTALS

Threats Found	TOT	FPT	CPI	AOR	SCT	COMBAT	DIT	LIT	SWAGT	Total AVG.	ACT	NIN	NIG	PA	NSA	PS	NDS
23	0.0	0.0	0.0	0.0	89.0	0.0	22.0	16.6	0.0	16.6	0.0	0.0	16.6	0	0	0	0

CAREER TOTALS

DT	FDT	VPT	ATIS	WFI	LOWBAT	HELI	ELLY	LOWWGS	LOWWGS	ACT	SIR	RELI	PA	NPA	DS	NDS
0.0	0.0	0.0	0.0	303.0	0.0	44.2	56.4	0.0	100.0	0.0	0.0	129.2	0	0	0	0

b(3),
b(6),
b(7)(C)

Narrative of Flight

Comments:

b(3), b(6), b(7)(C)		b(3), b(6), b(7)(C)	
VNM 163	MV-22B	CREW CHIEF	
TOTAL FLIGHT HOURS	TOTAL FLIGHT HOURS	EVALUATION DATE	
90.6	90.6	28 AUG 2012	
NATOPS EVALUATION			
REQUIREMENT	DATE COMPLETED	Q	CO
OPEN BOOK EXAMINATION	15 AUG 12	Q	
CLOSED BOOK EXAMINATION	15 AUG 12	Q	
ORAL EXAMINATION	16 AUG 12	Q	
EGRESS	16 AUG 12	Q	
EVALUATION FLIGHT	16 AUG 12	Q	
FLIGHT DURATION	TIME TO COMPLETE	OVERALL GRADE	
2.0	16.7904	QUALIFIED	

REMARKS OF POST EVALUATION/INSTRUMENT

Flight was flown from MCAS Miramar to multiple landing sites aboard Camp Pendleton for environmental studies b(3), b(6), b(7)(C) performed well given the landing sites were never landed in by this squadron before. All traffic calls were made in a timely fashion. SNM performed all the duties of a crew chief at this experience level. Continue to work on calls during landing phases.

Annual Egress was performed IAW OPNAVINST 3710.7 Series
Annual CRM evaluation flight conducted IAW OPNAVINST 1542.7 Series

Strengths: Situational Awareness
Weaknesses: Landing Calls

b(3), b(6), b(7)(C)		EXPIRES: 31 AUG 12	
b(3), b(6), b(7)(C)	b(3), b(6), b(7)(C)	DATE	16 AUG 2012
b(3), b(6), b(7)(C)	b(3), b(6), b(7)(C)	TIME	16 AUG 2012

b(3), b(6), b(7)(C) is a consistently strong performer who has recently built a solid reputation. So long as he continues demonstration of desire to excel, he will be a great asset to this squadron. LEP candidate is well qualified to perform the duties of a crew chief on the MV-22.

b(3), b(6), b(7)(C)	b(3), b(6), b(7)(C)	DATE	20 AUG 2012
---------------------	---------------------	------	-------------

TEST, CAPT, LTJG, or equivalent check or endorsement with CAPT, LTJG

67245

RATING

ATTENTION NOTICE (Aeromedical)

NOT AUTHORIZED FOR LOCAL REPRODUCTION

TO	FROM	FLIGHT SURGEON
b(3), b(6)	b(3), b(6), b(7)(C)	30 JUN 2013
SSN:	HR Loc	
	MAG-16	
Recommend subject individual be found physically qualified and aeronautically adapted for duty involving flight as:		
Class 1:	<input type="checkbox"/> SNA <input type="checkbox"/> SGI <input type="checkbox"/> SGII <input type="checkbox"/> SGIII	<input type="checkbox"/> AC/SAR <input type="checkbox"/> AC/FW <input checked="" type="checkbox"/> Other AC/HELO
Class 2:	<input type="checkbox"/> SNFO <input type="checkbox"/> NFO <input type="checkbox"/> ATC	
What has been <input type="checkbox"/> recommended <input type="checkbox"/> granted for:		
<input type="checkbox"/> Corrective lens required in performance of flight duties <input type="checkbox"/> Corrective lens required and extra pair must be carried in performance of flight duties (DVA < 20/100) <input checked="" type="checkbox"/> Cleared / Annual Physical Examination <input type="checkbox"/> Following Aircraft Mishap/Incident <input type="checkbox"/> Return from sick/grounded list <input type="checkbox"/> Other (specify)		
DATE GROUNDED	REASON	SIGNATURE
		b(3), b(6), b(7)(C)
EXPIRATION DATE OF CLEARANCE 30 JUN 2014		
ORIGINAL TO:	ORIGINAL TO:	
CO	<input checked="" type="checkbox"/> OPER OFF <input checked="" type="checkbox"/> TRNG OFF <input type="checkbox"/> FS <input type="checkbox"/> OTHER	
AYMED 6150/2	15-Jul-2013	AVTUSN
		(Date)
		(Name)
		CONCURRENCE FROM: (Name)
		Unit
		NBHC MIRAMAR
		SN 0105-LF-010-1700

SECTION IIA - FLIGHT PERSONNEL DESIGNATION RECORD

252

OPNAV 3780/32C 1 APR 1981

MARINE AIRCRAFT GROUP 16
MCAS MIRAMAR
PO BOX 452117
SAN DIEGO, CA 92145-2117

IN REPLY, REFER TO:

5710

DSSN

11 Apr 13

From: b(3), b(6), b(7)(C) Marine Medium Tiltrotor Squadron 163
To: b(3), b(6), b(7)(C) 6176 USMC

Subj: LOW LIGHT LEVEL NIGHT SYSTEMS QUALIFIED

Ref: (a) OPNAVINST 3710.7U
(b) NAVMC 3500.14B
(c) NAVMC 3500.11A
(d) A1-V22AB-NFM-000

1. Per the references, and having demonstrated the knowledge, proficiency, and capabilities required in the MV-22B Tiltrotor, you are hereby Low Light Level Night Systems Qualified.

2. This letter will be maintained in your NATOPS Jacket until superseded or canceled by subsequent correspondence.

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

NAME: NAME, first, middle, initial)

SSN

b(3), b(6), b(7)(C)

NAME

SOCIAL SECURITY NO.

ACCIDENT AND FLIGHT RULE VIOLATION RECORD**SUMMARY RECORD.** (Negative report by zero number of incidents; to be signed by Commanding Officer or his authorized deputy)

	PERIOD		NUMBER OF		SIGNATURE
	YEAR	QUARTER	ACCI- DENTS*	RULE VIOL.	
Summary incidents prior to this book & subsequent 1-1-80	19				Signatures on record in previous log book authenticated:
	19				
	19				
	19				
	19				
	19				
Year in which this log book began	2011	Jan-Mar			b(3), b(6), b(7)(C) VMWF-284 MA-165
		Apr-Jun			
		Jul-Sep	0	0	
		Oct-Dec	0	0	
this log book	19	Jan-Mar			
		Apr-Jun			
		Jul-Sep			
		Oct-Dec			
	19	Jan-Mar			
		Apr-Jun			
		Jul-Sep			
		Oct-Dec			
	19	Jan-Mar			
		Apr-Jun			
		Jul-Sep			
		Oct-Dec			
19	Jan-Mar				
	Apr-Jun				
	Jul-Sep				
	Oct-Dec				
19	Jan-Mar				
	Apr-Jun				



Automated Aircraft Discrepancy Book

ORG: OH4 BUINO: 168241 TMS: MV-22B Next Phase: 45,800 Hours Up Down Partial: P
 MODEX: 11 Assy Cdt: AYNE Basic Wgt: 34775 Acft Hours: 274,400 Last Flown: 22 AUG 2018 1456

Engine/APU/Prop Data | Open Work Orders | Awaiting Maintenance Control Approval | Closed Work Orders Last 10 Flights
 Acceptance For Flight | Consumption | Inspections Near Due | Removals Near Due | Summary



Oxy Qty	Fuel Grade:	Oil Grade	Oz. Of Oil Added	Multiplier	Description
00	Fuel Qty: 00				
Hot Seat Ind: YES					
Ordinance: No ordinance/weapon installed ~ 4K = ARC b(3), b(6) Special Equipment:					
Limitations: LAH EPP 108.66 RM EPP 108.34					
I have personally inspected this aircraft IAW the applicable MRCs/checklists. Any discrepancies noted have been entered on a work order.					
Certification of safe for flight conformance with NMAC, MCO or MCO. If authorized, other persons may sign.					
Fire reviewed discrepancy reports of lights, harness, and weapons.					
Signatures: Plane Captain: Safe for Flight: b(3), b(6), b(7)(C) Pilot: b(3), b(6), b(7)(C)					
A-Sheet Daily Maint Record Turnaround Maint Record Aircraft Limitations Daily Turnaround - Local Card Reference - LA 18 A-Sheet					

Ready

start



NALCOMIS OMA

Taskbar - Start - Stop - Close

Automated Aircraft Discrepancy Book

ORG: **GH4** BUINO: **168241** TMS: **MV-22B** Next Proper: **14500 Hours** Up/Down/Partial: **P**
 MODEX: **11** Assy Cds: **AYNE** Basic Wgt: **34773** Acft Hours: **274400** Last Flow: **22 AUG 2013 1458**

Engine/APU/Prop Data | Open Work Orders | Awaiting Maintenance Control Approval | Closed Work Orders Last 10 Flights
Acceptance For Flight | Consumption | Inspections Near Due | Removals Near Due | Summary

Icons for data manipulation: Refresh, etc.

Oxy Qty	Fuel Grade	JP5	Oil Grade	Oz. Of Oil Added	Multplier	Date
1,800.00	Fuel Qty:	9,200.00	23699	0.0	1.0	ENGINE AIRCRAFT TURBINE - CAE130S42 (1)
			23699	0.0	1.0	ENGINE AIRCRAFT TURBINE - CAE130S44 (2)

Hot Seat Ind: **NO**

Ordinance: **No Discrepancies Reported On A/C - B-1** **b(3), b(6), b(7)(C)** Special Equipment:

Limitations:

Pilot Signature: **Di**
28 AUG 2013 062

I have personally inspected this aircraft and the applicable MRCs/checklists. Any discrepancies noted have been entered **b(3), b(6), b(7) b(3), b(6), b(7)**

Certification of safe for flight condition by **MMCO, MU** or **MOO**. If authorized **b(3), b(6), b(7)(C)** sign:

I've reviewed discrepancy reports of flights, insured regt, and balance via accept **b(3), b(6), b(7) (C)**

Signature:

Plane Captain

Safe for Flight:

Pilot:

A-Sheet

Daily Maint Record

Turnaround Maint Record

Aircraft Limitations

Daily Turnaround Local Conference

Last 10 A-Sheets

ADB Work Order

Work Center 310	GR	QA Req'd N	System Reason DWS FOM
Aspy Cd W/NL	WO Status Cd U	PILOT/INITIATOR b(3), b(6), b(7)(C)	
Bump/Samo 168241			In Process Inspections 11

REPAIR CYCLE

DATE	TIME	EOC	DATE	TIME	EOC	DATE	TIME
RECEIVED	06 AUG 2013	1034	IN WORK	00	0000	COMPLETED	00 0000

DISCREPANCY

REMOVE AND REINSTALL AFT CARGO HOOK TO FACILITATE DWS INSTALL

CORRECTIVE ACTION

CORRECTED BY	INSPECTED BY	MAINT CONTROL	MCM 1P1K53G	JCN GH421816H
--------------	--------------	---------------	----------------	------------------

DB Work Order

Work Center: D40
 Assy Cd: AYNE
 BuNo/Serno: 188241
 CF Reqd: N
 WO Status Cd: U
 System Reason: 36 HOUR POWER ASSURANCE C
 In Process Inspections: 11
 Mode: 11

REPAIR CYCLE
 DATE: 22 AUG 2013
 TIME: 1009
 DATE: 00 0000
 TIME: 0000
 COMPLETED: 00 0000
 TIME: 0000

RECEIVED: 22 AUG 2013
 DISCREPANCY
 COMPLY WITH 36 HOUR POWER ASSURANCE CHECK, SIN = CAE130342; POSITION - 1; IN ACCORDANCE WITH REFERENCE:
 A1-V22AB-TIS-000

TEST: 1402Z
 SAT/UNSAT: _____
 PILOT: _____
 DATE: _____

CORRECTIVE ACTION

CORRECTED BY

MCN: 1P1KSMU
 JCN: GP4234088

DB Work Order

Work Center 040	CF Requested N	System Reason 35 HOUR POWER ASSURANCE C	In Process Inspections No	Modex 11
Asy Cd AYNE	WO Status Cd U	PILOT/INITIATOR GYSGT C PARNELL		

REPAIR CYCLE

RECEIVED	DATE	TIME	EOC	IN WORK	DATE	TIME	EOC	COMPLETED	DATE	TIME
	22 AUG 2013	1000			00	0000	0000		00	0000

DISCREPANCY

COMPLY WITH 35 HOUR POWER ASSURANCE CHECK ; S/N = CAE130544; POSITION - 2; IN ACCORDANCE WITH REFERENCE: A1-V22AB-TIS-000

TEST - APAC
SAT/UNSAT
PILOT
DATE

M3

CORRECTIVE ACTION

CORRECTED BY	INSPECTED BY	MAINT CONTROL	MCN 1P1KSMW	JCN GH4234088
--------------	--------------	---------------	----------------	------------------

ADB Work Order

Work Centre 021	CF Repo N	System Reason AFC-0151 NLT 28FEB14	In Process Inspections No	Modar 11
Assy Crt AYNE	WD Status Cd U	PILOT/INITIATOR b(3), b(6), b(7)(C)		
Bund/Serial 168241				

REPAIR CYCLE

DATE	TIME	EOC	DATE	TIME	EOC	DATE	TIME
07 APR 2013	2041		20 JUN 2013	1407		00 0000	0000
RECEIVED			IN WORK		COMPLETED		

DISCREPANCY CODE: 50 BASIC NO: 0151 REV LTR: A AMEND: PART KIT NO: A1
 COMPLY WITH INTRM: FOR THE INSTL OF TORQUE SHAFT DRAIN TUBE PN 901-000-288-101 FOR ENGINE INVERTER VALVE
 TO PROVIDE RETROFIT INSTR FOR THE INSTL OF THE MV-22 ACFT COMP BY OLEVEL HW PUBLISHED SCHED W&B NOT
 MOD. THIS REV EXPANDS THE APP TO THE REST OF THE MV-22 ACFT COMP BY OLEVEL HW PUBLISHED SCHED W&B NOT
 AFFECTED UP TO AND INCLUDING AM 1 (BUNO# 168241) DUE NLT 28FEB14 (FLIGHTLINE)

CORRECTIVE ACTION

INSPECTED BY

MAINT CONTROL

MCN

CORRECTED BY

1P1K017

JCN

GH4097273

DB Work Order

Work Center 021	CF Req'd N	System Reason AFC-0157 NLT 30SEP14	In Process Inspections No	Mode 11
Assy Cd AYNE	WO Status Cd U	PILOT/INITIATOR b(3), b(6), b(7)(C)		
Buro/Sero 168241	REPAIR CYCLE			
DATE	TIME	EOC	DATE	TIME
08 JUN 2013	1905		00 0000	0000
RECEIVED	IN WORK	COMPLETED	00 0000	0000
<p>DISCREPANCY</p> <p>COMPLY WITH INTRM: CODE: 50 BASIC NO: 0157 REV LTR: AMEND: PART: KIT NO: A1</p> <p>TO PROVIDE INSTRUCTIONS FOR INSTALLING WIRING AND MOUNTING PROVISIONS FOR THE MAYER MINI TRANSMITTER (MTX)</p> <p>ON SELECTED BLOCK C AIRCRAFT. COMPLIANCE BY O-LEVEL IAW PUBLISHED SCHEDULE. W&B IS AFFECTED. (BUNO#: 168241)</p> <p>Due NLT 30SEP14 (AVIONICS)</p>				
CORRECTIVE ACTION				
CORRECTED BY	INSPECTED BY	MAINT CONTROL	MCN 1P1KPW8	JCN GH4160333

ADB Work Order

CFR	IN	REQ	System Reason	IN Progress Inspections	Model
N	T	N	PH MACELLE STATIC WICK	No	11
WFO Status Cd	PILOT/INITIATOR				
U	b(3), b(6), b(7)(C)				

REPAIR CYCLE

DATE	TIME	EOC	IN WORK	DATE	TIME	EOC	COMPLETED	DATE	TIME
28 JUL 2013	0110			00	0000			00	0000
									0000

DISCREPANCY
TIP OF PH MACELLE UPPER AFT STATIC WICK FOUND BROKEN, TIP REMOVED AND DISCARDED IN FLIGHTLINE

wp

CORRECTIVE ACTION

INSPECTED BY	MAINT CONTROL	MCN	JCN
CORRECTED BY		1P1KRM/4	GH4210258

DB Work Order

Work Center 120	CF Reqd N	System Reason FS 357.5 DIMPLE	In Process Inspections 11
WO Status Cd U	PILOT/INITIATOR b(3), b(6), b(7)(C)		

REPAIR CYCLE

DATE	TIME	EOC	DATE	TIME	EOC
05 AUG 2013	1122		13 AUG 2013	2245	
RECEIVED			COMPLETED		00 000 1000

DISCREPANCY
RIGHT FS 357.5 HAS A DIMPLE WORN INTO IT AT THE RH IB AFT CLAMSHELL RECEPT. TYCOM AUTHORIZED DEFER PERMANENT REPAIR UNTIL NEXT PHASE AT TSN 420 +/- 21 HOURS

123

COORDINATIVE ACTION	INSPECTED BY	MAINT CONTROL	MCN 1016300	JCN 024017142
COMPLETION BY				

ADDB Work Order

CF Rept Read System Reason

N N DWS FOM

WO Status Cd PILOT/INITIATOR

U [REDACTED]

In Process Inspections

Yes

Modex

11

REPAIR CYCLE

DATE

TIME

EOC

DATE

IN WORK

TIME

DATE

RECEIVED

0000

00 0000

COMPLETED

0836

07 AUG 2013

1033

08 AUG 2013

DISCREPANCY

REMOVE AND REINSTALL AF COMPONENTS TO FOM DWS

REMOVED

M3

CORRECTIVE ACTION

INSPECTED BY

MAINT CONTROL

MCM

JCM

CORRECTED BY

1P1KSJF

GH4218168

DB Work Order

Work Order	100	OF Req'd	N	Mod	System Reason	In Process Inspections	Model
Any CD	168241	WO Status Cd	U	PILOT/INITIATOR	FWD CARGO DOORS	11	11
ANYE				b(3), b(6), b(7)			

REPAIR CYCLE

DATE	TIME	EOC	DATE	TIME	EOC	COMPLETED	DATE	TIME
RECEIVED	07 AUG 2013	1345	IN WORK	00	0000	00	0000	0000

DISCREPANCY
NO COTTER PINS ON FORWARD EXTERIOR CARGO DOORS 2RB1 AND 2LB1

for

CORRECTIVE ACTION

CORRECTED BY	INSPECTED BY	MAINT CONTROL	MCN	JCN
			1P1K954	GH4219220

DB Work Order

Work Order	CF Read	N	System Reason	AFT CARGO DOORS	In Process Inspections	Modex
120	WO Status	U	PILOT/INITIATOR	b(3), b(6), b(7)(C)	No	11
Assy Cd	2100/2100	1354	DATE	00 0000	COMPLETED	00 0000
AYNE	DATE	07 AUG 2012	TIME	1354	TIME	0000

REPAIR CYCLE
 RECEIVED 07 AUG 2012 1354
 DISCOVERED ANDY
 NO COTTER PINS FOR AFT EXTERIOR CARGO DOORS 2R82 AND 2L82

WVP

CORRECTIVE ACTION

INSPECTED BY	MAINT CONTROL	MCN	JCN
CORRECTED BY		1P1KS56	GH4219222

ADB Work Order

Work Csm 120	CF Req N	Reqd N	System Reason 6RO1B STRUT
Assy Ctl AYNE	WO Status Cd U	PILOT/INITIATOR b(3), b(6), b(7)	In Process Inspections Yes
Buro/Serno 168241			Modex 11

REPAIR CYCLE

DATE	TIME	EOC	DATE	TIME	EOC	DATE	TIME
RECEIVED	22 AUG 2013	1038	IN WORK	22 AUG 2013	1040	COMPLETED	00 0000

DISCREPANCY

6RO1B PANEL STRUT HAS GROOVE WORN INTO STRUT AND NEEDS TO BE REPLACED

CORRECTIVE ACTION

CORRECTED BY	INSPECTED BY	MAINT CONTROL	DCN 1P1K8NO	JCN GM4234112
--------------	--------------	---------------	----------------	------------------

M3

B Work Order

Work Center 130		CF Reqd N	QA Reqd N	System Reason DWS FOM	
Assy Cd AYNE	Buro/Semo 168241	WO Status Cd U	PILOT/INITIATOR b(3), b(6), b(7)(C)		In Process Inspections Ycs
				Modex 11	

REPAIR CYCLE

RECEIVED	DATE	TIME	EOC	DATE	TIME	EOC	COMPLETED	DATE	TIME
	06 AUG 2013	1026		06 AUG 2013	1332			00 0000	0000

DISCREPANCY

REMOVE AND INSTALL TROOP SEATS FOR DWS FOM. RH SEATS 2, 3, 4, 7, 12 AND LH SEATS 2, 6.

MB

CORRECTIVE ACTION

CORRECTED BY	INSPECTED BY	MAINT CONTROL	MCN 1P1KS3C	JCN GH4218168
--------------	--------------	---------------	----------------	------------------

ADB Work Order

005

Work Center 200	CF N	W N	QA Req'd N	System Reason GEN 3 FAIL	In Process Inspections Yes	Modex 11
Assy Cd AYNE	Buro/Semo 168241	WO Status Cd P	PILOT/INITIATOR b(3), b(6), b(7)			

REPAIR CYCLE

DATE	TIME	EOC	DATE	TIME	EOC	DATE	TIME
RECEIVED	29 JUL 2013	1729	1	IN WORK	31 JUL 2013	0738	1
				COMPLETED	00	0000	0000

DISCREPANCY

GEN 3 FAILED TWICE DURING 5 HOUR MISSION. ICING WAS ON WHEN FAILURE OCCURRED. FAILED ON DECK BOTH TIMES. WAS ABLE TO SECURE IT AND THEN TURN IT BACK ON INFLIGHT AND IT WOULD REMAIN ON.

CORRECTIVE ACTION

CORRECTED BY	INSPECTED BY	MAINT CONTROL	MCN 1P1KRN/P	JCN GH4210231
--------------	--------------	---------------	-----------------	------------------

DB Work Order

Work Center 200	CF Reqd N	Reqd N	System Reason DWS FOM
Assy Cd AYNE	Buro/Serno 168241	WO Status Cd U	PILOT/INITIATOR b(3)
		In Process Inspections Yes	Modex 11

REPAIR CYCLE

DATE	TIME	EOC	DATE	TIME	EOC	DATE	TIME
RECEIVED	07 AUG 2013	1205				IN WORK	07 AUG 2013
						COMPLETED	00 0000
							0000

DISCREPANCY

REMOVE FWD AND AFT HELLHOLE DOOR SWITCHES FOR DWS FOM

CORRECTIVE ACTION

CORRECTED BY	INSPECTED BY	MAINT CONTROL	MCN 1P1KS51	JCN GH4218168
--------------	--------------	---------------	----------------	------------------

The flight event started with an ODO brief covering the local weather and aircraft line up. At the completion of that there was a general overview by the designated section lead, b(3). Next the aircrew for b(3), b(6), b(7) conducted a brief of the events of the day. Conduct of flight was discussed with a flight brief ended with the NATOPS crew brief per the PCL. At the completion of the brief, paperwork was completed and crew manned for the hot seat. Once completed with the hot seat we departed with b(3) to conduct single ship CALs to LZ Black Rock with myself at the controls. I hand flew to a hover the first 2 approaches however due to the poor visibility and reduction as we descended I chose to couple to a 50' position hold and dial it down to 30' before manually reducing power via alt reference to a landing on the 3rd attempt at LZ Black Rock. Once we landed we changed duties with b(3), b(6), b(7) taking on the Flying Pilot duties. We took off with no issue and as we cleared the dust cloud at about 75 feet b(3), b(3) contacted us to say that they were complete at LZ Peanut and ready to swap LZ's. We were on a 2.5 mile final in conversion mode, I inputted LZ Peanut as the direct leg in the EICAS and gave us a course line to follow. The first approach was flown to a 30-50' hover followed by a wave off due my desire to get a better set up for the approach and to move closer to the waypoint as it would likely have less dust being kicked up because b(3) had already landed there. We made two more approaches both to early wave off's before the dust cloud had gotten to the aircraft because I felt we could bring our approach closer to the waypoint. On the 4th attempt on the downwind I conducted a stat layer check with no issues or deviations noted, b(3), b(6), b(7) flew a very controlled approach setting a good descent and deceleration rate almost exactly over the waypoint. Once in a hover he began making the small drift corrections however in my opinion I felt that a HOGE hover coupled approach would work well to get a controlled approach to a landing. I instructed b(3), b(6) to come up to a 50' hover were I would couple the aircraft to position hold. Once couple the aircraft was holding a stable hover and after a few second began to decrease the forward drift it had established after selecting position hold. As the hover cue centered out the aircraft was able to couple to position with the associated filled circle however the center was filling and opening. As we waited on the aircraft to couple before descent I noticed an MGT spike into the red on the left engine and return to the yellow region, followed almost instantly by a reduction in the normal noise that is heard while hovering and an immediate descent. On feeling the descent and hearing the crewchief make a stop down call I applied TCL full forward, which caused at least the left MGT to be in the red region, in an attempt to reduce or stop the rate of descent. As we made contact with the ground in what seemed like a level no drift situation the aircraft began a slow roll to the right coming to a rest on its right side after a 90 degree roll. There was no ICS or electrical power at this point and the aircrew began to egress. As I unstrapped from my seat I attempted to pull the egress handle however I didn't get a response. As I released from the seat I noticed the other crewmembers egressing through the crew door and followed out as the last out of the aircraft. All crew accounted for we gained a safe amount of separation from the aircraft which was burning and looked over ourselves for any injuries and contacted 911 via cell phone. At this point the first responders began to arrive and we walked over to them.

b(3), b(6), b(7)(C)

b(3), b(6), b(7)(C)

2 September 2013

To Whom It May Concern,

The following statement is in regards to the Class A mishap that occurred near Creech Air Force Base on 26 August 2013. It is written to the best of my recollection.

On 25 August 2013, I arrived in Las Vegas, Nevada via Southwest Airlines. I spent a portion of my day familiarizing myself with the Las Vegas Sectional Chart, Google Earth, and satellite imagery retrieved from the National Geospatial Intelligence Agency. I have attached copies of the documents that I had referenced in my planning. My intent was to familiarize myself with the area. I wanted to know the surrounding airspace, NAVAIDs, controlling agencies, airfield layout, terrain, and discrepancies between charts. That night I had returned to my room in the Aliante Hotel by 2230 and went to bed around 2240.

On 26 August 2013, I woke up around 0630. I sent a text message to my wife and laid in bed until approximately 0730. During this time, I read the news on my iPad and checked the local weather in preparation for the day's flight. I also took a moment to add Creech and the surrounding airfields into my iPad. Afterwards, I shaved, showered, and left for breakfast. I ate at the breakfast buffet. I had a plate of eggs, hash, and some fruit. After breakfast, I returned to my room where I put on my flight suit and packed my flight bag. I ensured that I had all required publications, checklists, food, and water. I was in the hotel lobby by 0900 and we departed for Creech AFB around 0930.

I arrived at Creech AFB around 1015. The first aircraft had landed shortly after. From the time of my arrival until our 1230 ODO brief, we had begun preparations for the flight. b(3), b(6), b(7)(C) and myself had unpacked and setup the JMPS network. We had also received an airfield and airspace brief. On a whiteboard, there were grid coordinates for the landing zones we were to assess. I put the grid coordinates in JMPS to see their approximate locations and compared them with the landing zones given in the airspace brief. After entering the points in JMPS, I took note of their approximate locations, surrounding terrain, and elevation. I compared this information with a sectional chart and the imagery I had received the day prior. I also took a moment to check the weather since there was a WiFi connection in the mission planning room. The weather was cooler than I expected it to be. While I was doing this, b(3), b(6), b(7)(C) was studying a terrain chart and manually plotting the grid coordinates. This was b(6) preparation for the section brief and cockpit brief. Up until the brief, b(3), b(6), b(7)(C) was prepping the chart, b(3), b(6), b(7) was creating a drawing file in JMPS, and I was working on a weight and power as well as generating a smart pack. For my weight and power, I used the daily maxes, which are the max temperature, pressure altitude, and density altitude. I planned for the worst-case scenario, which would be the hottest portion of the day and in the heaviest aircraft. After having JMPS calculate the weight and power, I also cross-referenced the pressure altitude, density altitude, and temperature on JMPS with what was provided to me by the ODO.

At 1230, the ODO b(3), b(6), b(7) conducted his brief. There were also no questions for the ODO at the conclusion of the brief. Next b(3), b(6), b(7) the Section Leader, briefed the conduct of the flight. I do not remember this portion of the brief in its entirety. b(3), b(6), b(7) discussed the conduct of the flight, which was to takeoff as a section, and to land at LZ Blackhawk, LZ Peanut, and fly over where the single point external load would be. b(3), b(6), b(7) also discussed us utilizing the LZ's at different times. It was to my understanding that we would not be landing as a section. There were no questions at the conclusion of b(3), b(6), b(7) brief. Afterwards, b(3), b(6), b(7) conducted the NATOPS cockpit brief. b(3), b(6), b(7)(C) used the NATOPS for the brief and went over each item. None of the crew or

myself had any human factors issues to note. None of us were receiving and training codes, so there were no discuss items. [b(3), b(6), b(7)(C)] briefed the conduct of the flight; we discussed the implications of the weather since there were rain showers in the area, and talked about the landings. I recall him saying that we would take each landing to a hover in order to assess the brownout conditions. I anticipated all the landing zones to be dusty and expected a loss of outside references and the possible need to wave off some of the approaches. The brief concluded and there were no questions from the aircrew or myself. Although I expected the landings to be challenging, I felt the overall plan was straightforward: We would take off, fly to some of the local LZs, assess them, and return to Creech AFB. After the brief, I completed the SmartPack and loaded the brick. After loading the brick, I verified there were no error messages. I drank some water, ate a granola bar, and used a restroom. Out of habit, I do that before every flight. Once Aircraft 11 had landed, I put on my flight gear (Helmet, ear protection, flight vest, gloves, and O2 Mask). I adjusted my gear for tightness and left to preflight the aircraft.

At approximately 1400, I walked out to the aircraft. The crew that we were hot seating from was in the process of shutting down. At this time, I did a thorough preflight inspection of the aircraft. I walked around the aircraft in its entirety looking for discrepancies. No discrepancies were noted. The aircraft had been completely shut down, and we had received fuel. In an effort to take less baggage into the cockpit, I had taken my PCL and kneeboard out of my green flight bag and secured it in the back. I felt if there was anything else I needed from it, I could ask the crew chief. At this time, [b(3), b(6), b(7)(C)] had already been strapped in on the left side of the aircraft. [b(3), b(6), b(7)(C)] had climbed out of the right seat. After [b(3), b(6), b(7)(C)] exited from the cabin, I set my weight to approximately 205 on the seat and climbed into the right seat. I set my height and foot pedals for a natural position then buckled in the five-point harness. At this time, I checked to make sure my ICS chord was not caught on anything or under my harness. I put on my kneeboard and set up my displays. When I set up my displays, I set my left (inboard) display for VSD with a FLIR underlay and adjusted the brightness. I set up my right (outboard) display for my digimap centered; terrain set for height above aircraft, IVZ for 3, and adjusted the contrast. I set up my hover page to replace my digimap at 40 knots. I set it up to have the map underlay at a .5 scale zoomed in twice. I adjusted the brightness so the digimap underlay would not washout the symbology on the hover page. Next, I tried to load the brick. The waypoint set and drawing file did not load. We verified that there was no active flight plan in the CMS and tried two more times to load the brick. It still would not load, so I manually entered in the grid coordinates for the Landing zones that we planned on flying to. After entering in the grid coordinates, I verified the accuracy by crosschecking where they were on the digimap to where they were plotted on the chart. We started the aircraft in accordance with the NATOPs and used the PCL. [b(3), b(6), b(7)(C)] started the aircraft with the checklist and I guarded the controls. Other than the brick not loading, there was nothing out of the ordinary. We transferred controls. [b(3), b(6), b(7)] made the calls to ground and tower and we taxied out as a section. While [b(3), b(6), b(7)(C)] taxied, I verified our position on the airfield diagram. We took off in a section on Runway 08. Once we were in position on the runway and stopped forward motion, I turned the interim power on and the nose wheel steering off. I believe we were behind and to the right (upwind side) of [b(3), b(6), b(7)] aircraft. As [b(3), b(6), b(7)(C)] advanced power, I checked the engine gauges and verified we had four positive rates of climb. I raised the landing gear once I saw [b(3), b(6), b(7)]'s landing gear come up.

We climbed to approximately 500' AGL and departed to the North. We were assigned individual squawk codes and I had turned on our IFF shortly after. [b(3), b(6), b(7)] had instructed us to go to LZ Blackrock while he lands at LZ Peanut. We had continued to LZ Blackrock, which was to the west of our current position. While transiting to LZ Blackrock, I entered it in the CMS as an INAV waypoint with a westerly ingress heading. We were still on an extended downwind for the landing zone; we conducted a Stat

layer check and the landing checklist. At this time, b(3), b(6), b(7)(C) was still flying the aircraft and there was nothing unusual to note. On first approach into LZ Blackrock, I was scanning the terrain and making calls for distance, altitude, and airspeed. At approximately 50' AGL, we were in a dust cloud and I began to lose outside references. I let the crew know that I was browned out in the right seat. We descended to approximately 20' AGL before waving off. On the downwind leg, we had agreed that it was dusty but now knew what to expect. From our position, we could see the dust cloud from b(3), b(3) at LZ Peanut. On downwind, I conducted the landing checklist and we attempted to land at the same spot. We flew a standard conversion pattern at 300' AGL and at 80 knots with the digimap set to a 4-mile scale. We made all turns to final at approximately 1NM. At .3NM inbound to the LZ, we were approximately 150' AGL and 50 knots. We (the pilots and crew) lost visual reference from the dust cloud and waved off. We discussed that there appeared to be a spot slightly beyond where we were landing that looked like the soil was darker. We were anticipating that at this spot there would be less dust. We flew a third approach to this spot; we marked the spot on the digimap, and waved off this approach as well. The aircraft responded well to all three wave offs; there were no warnings, cautions, or advisories to note. The final approach to this landing zone was to the newly marked spot. We had arrived over the spot, descended to approximately 30' AGL and we climbed back up to approximately 50' AGL. At this point, b(3), b(6), b(7)(C) stated that he would like to hover-couple the aircraft. I pressed the hover couple button and selected position hold. After the autopilot captured the position, I dialed the altitude down to 30' AGL on the flight director panel. The aircraft responded as I would expect and descended to 30' AGL over the spot. b(3), b(6), b(7)(C) continued the descent to landing over the spot. Once on deck we transferred control of the aircraft.

After the change of controls, we heard b(3), b(6), b(7) say over the radio that he finished working in LZ Peanut and would like to switch Landing Zones. We departed LZ Blackrock for LZ Peanut. While enroute we maintained visual separation with b(3), b(6), b(7) aircraft. From our position, we were on an extended final approach to LZ Peanut. We were approximately 300' AGL and I left the nacelles at 75 degrees while travelling to the new LZ. b(3), b(6), b(7)(C) used the CMS to put LZ Peanut as the new destination and conducted another stat layer check. There was nothing unusual to note. While approaching LZ Peanut, I referenced the proximate location of the zone. The area looked flat, but there was a dirt road pretty close to where we would be landing. I wanted to get a good glideslope before getting into the dust cloud and I announced that I am picking an open spot just prior to the road. I continued to fly a normal approach to this spot. At approximately 30' AGL, I lost visual reference with the ground, verbalized it to the crew, and stated that I was "on the glass." I waved that one off because I felt like I spent too much time in the dust cloud and felt it would be better to try again. During the waveoff, I did not feel anything unusual with the aircraft. I flew a 300' AGL pattern and referenced my position based on outside references, my digimap, and trend dots. My second approach into the zone was to the same spot. At approximately 80' AGL, we waved off. b(3), b(6), b(7)(C) that the spot I picked looked too short of the grid coordinate and to land beyond the road. I flew a 300' AGL pattern and took note of the winds being strong out of the east. They were approximately 20 knots, but not much of a crosswind. I made a mental effort to not let that affect my approach to the landing zone. We arrived over the spot at approximately 40' AGL. I lost outside references and let the crew know I was on the glass. As I stabilized and descended, I felt that I was over controlling the aircraft and chose to wave off. After the waveoff, I felt I had a good feel for the winds and scan on the hover page. On this approach, I thought to myself that I really wanted to emphasize trim and relaxing on the controls. After turning final, I was happy with the way the approach had been going. I felt that I was aligned on my course and I was at appropriate at speeds and altitudes for the approach. Additionally I felt I had a good sight picture for where I wanted to land the aircraft. While on a stable approach to the landing zone, we descend through 50'. I felt I was starting to lose visual reference, decided to stabilize and climb to

approximately 50' AGL, and hover couple the aircraft, as we had done before. I let crew know my intentions. We climbed to 50' AGL and stabilized. I hit the trim release button and stabilized the aircraft. I asked b(3), b(6), b(7)(C) to arm the hover couple, select position hold, and I let the aircrew know that the hover couple was being armed and some of the drift may be the autopilot capturing the position. The flight director panel was set to 50' and I felt the autopilot capture this altitude. As we held our altitude, I was waiting for the position hold to capture. The next sequence of events happened very fast.

After only a few seconds of waiting for the hover couple to capture its position, I felt strange. I did not know it immediately, but the strange feeling was the lack of G's on my body as we began to fall. At the same time, I took note of how it was quiet in the aircraft. I could not hear the engines, the crew, or myself over the ICS. I could not hear if there were any aural alerts and nothing caught my attention on my PFD or MFD. I was taken by surprise at how silent everything had become. I as well as b(3), b(6), b(7)(C) advanced power. As this happened I glanced over at the EICAS and noted that there was a lot of "red" on the gauges. There was too much information to process given the short amount of time. I noticed the left MGT was red and almost all the way filled in. I do not recall if the right MGT was red or yellow, but it was high, but not as high as the left. I also took note of the top advisory on the EICAS, which I believe said "Compressor Stall." I am certain I saw the word stall, but I only caught a quick glimpse of the EICAS before I could tell by the dust that we were falling. In that short period, I put myself in the best posture for a vertical crash and then impacted the ground. On impact, I could feel the seat compressing. Shortly after the initial impact, I could see the nacelle through the dust and see that we were rolling to the right. I remember hearing the aircraft breaking and hearing the rotors broom straw away. I saw some glowing in the dust, which I assume were some components on fire. I do not remember the aircraft actually stopping from the rolling motion. When some sense came back to me, I was on my side, knew that there was some fire. It took me a second to realize that I was on my side and decided not to blow my window since it was against the ground. I saw b(3), b(6), b(7)(C) was awake and working to unstrap and that I was in his way. I knew parts of the aircraft were on fire and that we still had approximately 8,000 pounds of fuel at the time of the crash. At this time, I was not sure how much time was left before the fire spread. I climbed through the cabin door and could not see out the back. I knew the ramp was down, but saw a lot of black smoke. I saw some light to my left and that was where the crew door had been opened by the crew chief before attempting to land. I tried calling to the crew chiefs and thought that they may have gone out the back. I crawled through the door and saw that I was under the aircraft. I could see some parts of the aircraft on fire and struggled to find a spot that I could squeeze through. Once I got out, I started looking for the crew chiefs while getting some separation from the burning aircraft. I found both b(3), b(6) and b(3), b(6), b(7)(C) relatively unharmed and getting separation from the aircraft. I stopped to look for b(3), b(6), b(7)(C). After I turned around, I saw b(3), b(6) egressing from the aircraft in the same manner as I did. As the aircraft became engulfed in flames, we moved further back from the aircraft, and then assessed each other for injuries. At that point, b(3) made phone calls to emergency services and base. The Air Force first responders shortly after picked us up.

b(3), b(6), b(7)(C)

To whom it may concern,

The morning of August 26th I woke up and took a shower and got ready for work. Walked down to the lobby to get a ride to work and met up with the rest of my crew. Arrived at the hangar and went to check out my flight gear at the other building, got all of that together and walked back down to the hangar to wait for brief. As I was waiting I walked to a Korean bbq place and got some food, a coke, and a Gatorade for the flight. After returning to the hangar and eating I walked back to the other building for the flight and ODO brief at 1230. After the pilots gave a thorough brief and explaining what we were doing that day I walked back down to the hangar to wait for the hot seat. When the plane returned we switched crews, completed a walk around and fueled the plane up to 10,500 lbs. when we were done fueling we had everything ready and started our taxi out to the runway at 1455. There were multiple landing zones we were going to check out for the day so see the level of RVL (reduced visibility landing) and what kind of terrain was around the zones. We taxied out and took off at 1500 and started toward our first zone. At that zone we conducted multiple approaches to a hover, wave offs and landings. We had very good power coming out of the hover and coming up off deck when we were taking off. After that we moved to the second zone where our playmate had been working before us. At that zone we also did multiple approaches to a hover to see the level of RVL in that zone. We had completed a stat check looking at all of our components, oil and fuel levels, flight surfaces, electricity and other things, everything looked normal. The last pass we went down to a 30 foot coupled approach to let the plane take us down to the deck. It wasn't getting in the right position for the plane to set up so we took it back up to 50 feet. As we were coming up through about 48 to 50 feet everything went silent I could not hear the engines, no voice warnings or ics in the plane. I called out 50 feet clear below and at that point we started to descend. At roughly 40 feet I could tell we were falling to fast, so over ics I called stop down. We kept descending so I was calling stop down multiple times and louder and louder each time. Until about 15 or 20 feet when I knew we were going to hit the ground, I pushed myself back from the crew door on the forward right side. We impacted the deck and I immediately buckled and fell. Then I started to feel the plane roll over on the right side and I could hear the blades smacking the ground. All I could really hear was the blades and the sound of twisting and crunching metal. At that point I was on my face and I pushed myself up ripped my gunners' belt off and my eye pro, looked out the back of the plane to see if I could run out the ramp but it was engulfed in flames and dripping with fuel. I looked up at the left side window which was on top now to see if I could blow that but I could see fuel running down the window and thought if I blew it, it would put us in a much worse situation. At that point I looked down out the crew door which was facing the dirt and could see a little bit of daylight off to the right hand side. I figured right now that is my best option, so I low crawled out the door and was stopped by part of the plane. I looked more off to the right side and had to crawl about 2 or 3 feet aft then out. After running about 20 or 25 feet I turned around to make sure everyone else made it out and I saw both pilots and the other crew chief with me so I turned back around and started running up wind and away from the plane. We all stopped running after a little bit and looked each other over to make sure none of us were in seriously bad condition. Then b(3), b(6) said he was going to call the unit and let everyone know we were all ok and I called 911 right then. We waited as we were on the phone and we both hung

up and started to walk to the medical personnel that were on the road. When we got there they looked us both over took vitals and did the normal medical thing.

This is the day of august 26th as I recall and all the events that happened that day.

b(3), b(6), b(7)(C)



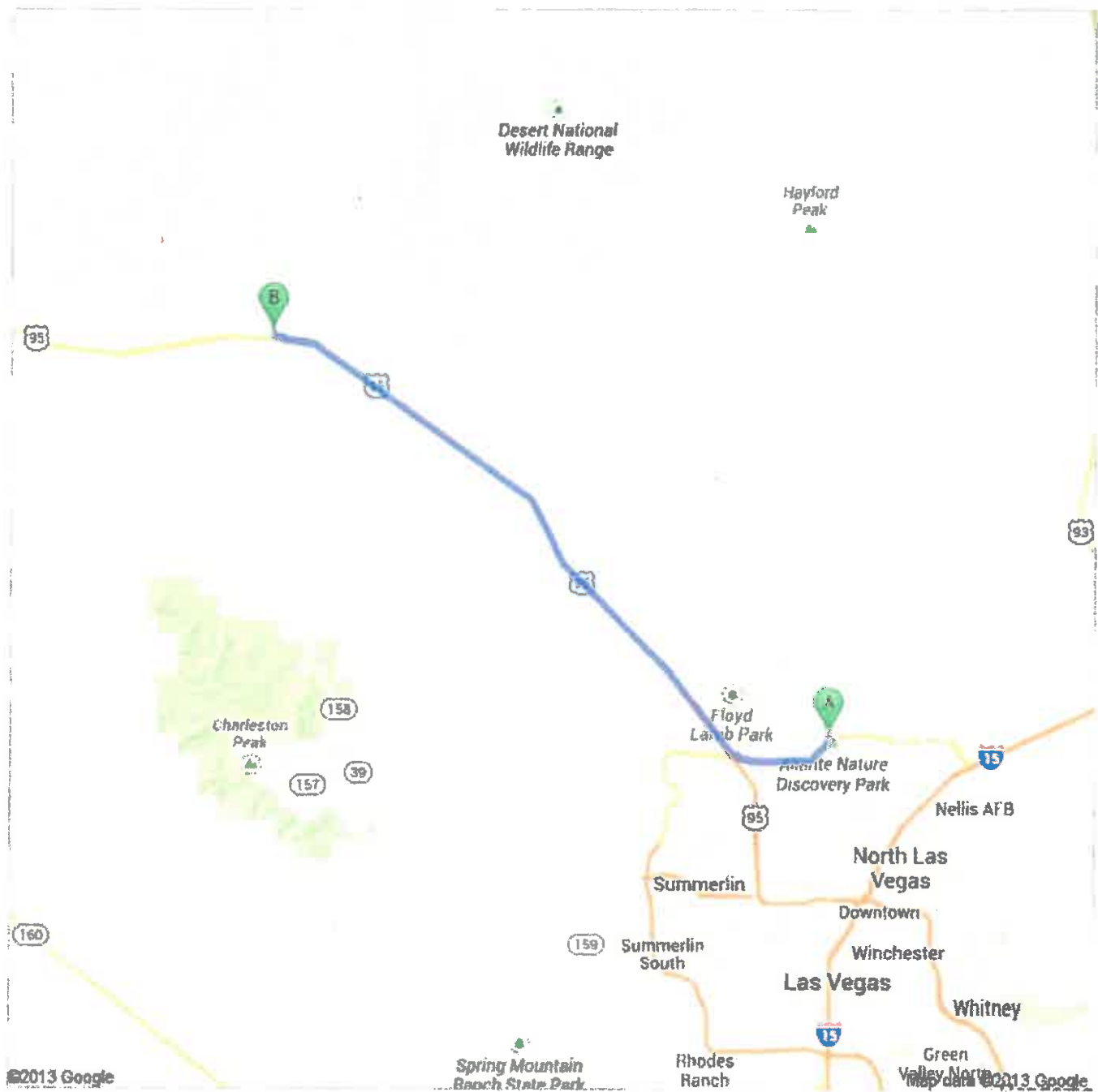
To whom it may concern,

On August 26th I woke up around 5 to 5:30 am took a shower, ate some breakfast and then headed to work to arrive at 0600. I was on standby up until 0830, when I boarded and helped stage all the gear in the aircraft that ferried me over to Creech Air Force Base. We departed at 0900 and landed around 1040 at Creech. I then met up with the rest of the crew that I was supposed to fly with, and then proceeded to standby and eat some lunch up until our brief time at 1230. I attended our brief where we had our ODO brief, flight brief and then cockpit brief, after the completion of all briefs I checked out and inspected all my flight gear and then proceeded to standby up until our 1400 hot seat. At 1400 we hot seated A/C 11 and then proceeded to cold fuel to 10500 lb of fuel, we then got back up to rotors spinning. I did the final walk around of the aircraft and pulled chocks, we did a system stat check and the pre taxi checklist before taking off as a section. We then took off with a 71 STO. After takeoff our section lead broke the flight apart to go to two different LZ's, we went to LZ long rifle and did about 3 to 4 wave offs and 1 to 2 landings. The conditions were 4 to 5 RVL'S and the aircraft was not acting up in any way, we also did a stat check. After our section lead was complete they requested to switch LZ's, we then proceeded to do a stat check and then switched with our lead and went to LZ peanut. We performed 2 to 3 wave offs and no landings on the last landing attempt we came to a 50 ft hover coupled approach, we started to come down through thirty but we all called brown out and the aircraft wasn't as stable as we wanted so we reset at 50 ft. At 50 ft we had a good look and then proceeded to attempt to land the aircraft, at this point the aircraft got unusually quiet and I felt a floating sensation which ended with us hitting the deck around 50 ft later. During the fall we had no ICS and no voice warnings.

b(3), b(6), b(7)(C)



Directions to Creech Air Force Base
Indian Springs, NV 89018
37.2 mi – about 39 mins



44



Aliante Casino + Hotel
7300 N Aliante Pkwy, North Las Vegas, NV 89084

1. Head northwest on N Aliante Pkwy go 276 ft
total 276 ft
-  2. Make a U-turn go 0.1 mi
total 0.2 mi
About 1 min
-  3. Take the ramp onto Co Rd 215 W go 5.0 mi
total 5.1 mi
About 6 mins
-  4. Turn right onto Sky Pointe Dr (signs for US 95 N) go 0.1 mi
total 5.2 mi
-  5. Take the 1st left to stay on Sky Pointe Dr go 0.3 mi
total 5.5 mi
About 1 min
-  6. Turn left to merge onto US-95 N go 30.5 mi
total 36.0 mi
About 27 mins
-  7. Turn right go 98 ft
total 36.1 mi
-  8. Turn left toward 3rd St go 1.1 mi
total 37.2 mi
About 3 mins
-  9. Turn right onto 3rd St go 194 ft
total 37.2 mi



Creech Air Force Base
Indian Springs, NV 89018

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2013 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

14 November 2013

Summary of Interview with [b(3), b(6), b(7)(C)]

On 14 November at 0900 PST a telephone interview was conducted with [b(3), b(6), b(7)(C)] [b(3), b(6), b(7)(C)] USAF, a member of the Creech Air Force Base Fire Department. [b(3), b(6), b(7)(C)] was a member of "Crash 10," an Aircraft Rescue and Firefighting vehicle that participated in the post-mishap response to the VMM-163, MV-22B aircraft which experienced the hard landing at LZ Peanut, approximately 1 nautical mile northeast of Creech AFB airfield. [b(3), b(6), b(7)(C)] [b(3)] also reviewed the "dispatch logs" from the emergency response that day with the investigating officer during the phone interview. Below is a summary of the events [b(3), b(6), b(7)(C)] described from personal recollection and from the log reports he referenced.

[b(3), b(6), b(7)(C)] stated the following:

- (1) That the Creech Airfield Fire Department responded with two "Crash Trucks" (Crash 8 and Crash 10), one "Command Vehicle" (DC 4), one Fire Engine (Engine 22), one "Medical Unit Truck" (Rescue 30), and one "Tanker Truck" (Tanker 26). An ambulance attached to the Creech Air Force Base Medical Unit also responded (Med 1).
- (2) At approximately 1535L Crash 8, Crash 10, Engine 22, and DC 4 were dispatched by Creech Dispatch to respond to the mishap site. Crash 8 arrived first, at approximately 1540L, followed shortly by the other vehicles. Initially it was unknown whether or not any aircrew were in the mishap aircraft and DC 4 directed Crash 8 to "cut a path" to the aircraft to attempt a rescue. The aircrew initially had not made contact with the rescue crews. While Crash 8, 10 and Engine 22 fought the fire, the aircrew made their way to the Engine 22 crew and made contact, which was then reported over the radio. Small explosions occurred and DC 4 commanded all the vehicles to cease fighting the fire and return to a staging area (on the nearby road) until a safety representative could confirm what ordnance or explosives were on the aircraft. At approximately 1552L the vehicles pulled back to the staging area, and Crash 8, Crash 10, and Engine 22

returned to the air base to refill their water tanks (an approximately 5 minute drive).

- (3) The medical unit ambulance (Med 1), which also arrived shortly after the first Crash 8 vehicle, made an on scene medical assessment of the pilots and aircrewman, determining that no further medical attention was needed. The pilots and aircrew remained in the area throughout the firefighting efforts.
- (4) At approximately 1610L Crash 10 returned and was ordered by DC 4 to begin fighting the fire again. Crash 8 and Engine 12 followed shortly thereafter. Rescue 30 was ordered by DC 4 to return to the air base to bring Tanker 26 out to the site to have a ready supply of additional water.
- (5) At approximately 1627L the fire was officially out. "Overhaul Operations" (putting out small flare-up fires) occurred until 1734L.

I certify this to be an accurate summary of the description of the events provided to me by (b)(3), [REDACTED] USAF [REDACTED]

Investigating Officer

RE: 168241 Cost - Message (Plain Text)

Message

Ignore X Delete Reply Reply All Forward More Meeting Move to: ? To Manager Team E-mail Rules OneNote Categorize Actions Follow Up Mark Unread Find Related Select Translate Zoom

Delete Respond Quick Steps Move Tags Editing Zoom

From: [REDACTED]
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: 168241 Cost
Signed By: [REDACTED]

Sent: Thu 11/21/2013 5:49

Contract DD250 Price : \$58,223,497
GFE Engines : \$4,172,748
Remaining GFE : \$ 1,412,812
Total : \$63,922,714

Total:
-----Original Message-----
From: [REDACTED] PMA-275
Sent: Thursday, November 21, 2013 2:27 AM
To: [REDACTED] VMM-163; [REDACTED] N421H1; [REDACTED] AIR 2.3; [REDACTED]
[REDACTED] CIV; [REDACTED] PMA 275
Cc: [REDACTED] VMM-165; [REDACTED] VMM-266, Maintenance Control
Subject: Re: 168241 Cost

[REDACTED]

Can one of you please dig up the requested info on aircraft 168241 for [REDACTED]

Thanks
[REDACTED]

See more about [REDACTED] PMA 275.

